

Application No. A.21-07-012

Exhibit No. _____

Date _____

Witness Robert Hanford and Mark Insco

BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

GOLDEN STATE WATER COMPANY

REBUTTAL TESTIMONY

**ROBERT HANFORD AND
MARK INSCO**

Volume 1 of 2

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**GOLDEN STATE WATER COMPANY
REBUTTAL TESTIMONY OF
ROBERT HANFORD AND MARK INSCO**

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1 **GOLDEN STATE WATER COMPANY**

2 **REBUTTAL TESTIMONY OF**

3
4 **ROBERT HANFORD AND MARK INSCO**

5
6
7 **Introduction**

8
9 (Q) Please state your name.

10 (A) My name is Robert Hanford. I am employed by Golden State Water Company ("GSWC"
11 or the "Company") as the Engineering Planning Department Manager. My qualifications
12 are included as Attachment A of the Operating and District Capital Additions Prepared
13 Testimony in this proceeding.

14
15 My name is Mark Insko. I am employed by GSWC, previously as a Sr. Civil Engineer in
16 the Engineering Planning Department, and since March 2020 as the GIS Manager in
17 the Field Technology Services Department. My qualifications are included as
18 Attachment B of the Operating and District Capital Additions Prepared Testimony in this
19 proceeding.

20
21 (Q) What is the purpose of this rebuttal testimony?

22 (A) The rebuttal of the Engineering Planning Department will address the Report and
23 Recommendations on Pipeline Replacement, Report and Recommendations on Region
24 1 (Arden-Cordova, Bay Point, Clearlake & Simi Valley), Report and Recommendations
25 on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items,

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

and Customer Service, Report and Recommendations on Region 2 Plant and Safety Issues, and Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation from the Public Advocates Office at the California Public Utilities Commission ("Cal Advocates").

Contingency and Escalation

Escalation Factors

(Q) Does Cal Advocates recommend "The Commission should suspend direct cost escalation in 2021, 2022, and 2023 because of the economic downturn caused by the COVID-19 pandemic."¹?

(A) Yes. Cal Advocates recommends 'zero' escalation of direct costs for all capital projects proposed within Budget Groups 50, 51, 53, and 54.

(Q) Does GSWC agree with Cal Advocates' recommendation for 'zero' escalation of direct costs associated with proposed projects in Budget Groups 50, 51, 53 and 54?

(A) No. GSWC strongly disagrees with Cal Advocates' recommendation for a 'zero' escalation of direct costs on all capital projects. It appears Cal Advocates is attempting to leverage the horrific impacts of the COVID-19 pandemic as justification to dissuade the Commission from approving escalation of direct costs, such as: permits, professional engineering design and inspection services, GSWC District and Regional labor costs, insurance, tools, taxes, and construction services associated with future capital projects. GSWC believes that Cal Advocates' position should be

¹ Report and Recommendations on Region 3 plant, Contingency, and Plan Escalation at 2:4 - 6.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 rejected for a number of reasons. As further explained below, Cal Advocates has
2 based its recommendation on stale data from the height of the pandemic that fails to
3 reflect economic conditions that persist today, let alone what is expected to exist
4 during the remainder of the rate case period. In fact, Cal Advocates is
5 recommending that the Commission reject Cal Advocates' own direct labor
6 projections.

7
8 (Q) Does Cal Advocates acknowledge GSWC's use of escalation factors that were
9 prepared on behalf of Cal Advocates and adopted by Cal Advocates?

10 (A) Yes, Cal Advocates states "In its application, GSWC uses direct cost escalation
11 factors of 3.7% for 2021, 4.1% for 2022, and 4.3% for 2023. GSWC based this set of
12 escalation factors on the Public Advocates Office's February 11, 2020 Memo on
13 Compensation Per Hour. In these monthly memos, Cal Advocates provides the
14 Commission's water industry staff with historical and forecasted annual changes in
15 compensation per hour rates. Cal Advocates' monthly compensation memos are
16 based on data from a private economic forecasting organization, IHS Global Insight.
17 GSWC escalates direct costs for capital projects' design and permitting according to
18 factors from a Cal Advocates compensation memo to account for labor cost
19 inflation."²

20
21 (Q) On what basis does Cal Advocates offer to support its' recommendation that GSWC
22 should not use Cal Advocates own escalation rates in this proceeding?

23
24
25
26 ² Ibid. at 7:7 – 17.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Cal Advocates states “GSWC’s direct cost escalation factors are unreasonable
2 because they fail to account for the economic downturn caused by the COVID-19
3 pandemic. During this COVID-19 recession, the Commission should not authorize
4 funding for increases in labor expenses due to inflation.”³

5
6 (Q) Does Cal Advocates offer any empirical evidence to support its forecast that there will
7 be no escalation in labor rates in future years 2021, 2022, and 2023?

8 (A) Cal Advocates does not present any financial, economic, or unemployment evidence
9 or forecasts for 2021, 2022, or 2023. Conversely, Cal Advocates relies on a
10 backward looking ‘snapshot in time’ from mid-2020 when controlling the impacts of
11 the pandemic were uncertain. Cal Advocates is utilizing data resulting from the State
12 mandated shutdown of California during the height of the pandemic.

13
14 (Q) Is the testimony presented by Cal Advocates representative of the current economic
15 and unemployment conditions?

16 (A) No it is not. Cal Advocates states “... the Commission should recognize that the
17 United States has been coping with an economic downturn caused by the COVID-19
18 pandemic. As of September 2020, California’s unemployment rate stands at 11.0%
19 (compared to 4.0% in September 2019).”⁴ This is in contrast with the State of
20 California’s EDD website indicating the economy is rebounding as unemployment is
21
22
23

24 ³ Ibid. at 8:9 – 12.

25 ⁴ Ibid. at 7:20 – 23.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 trending downward⁵ and the State of California's COVID-19 website states "California
2 aims to fully reopen June 15".⁶

3
4 (Q) Do the unemployment statistics presented by Cal Advocates reflect the current
5 unemployment conditions of California as of February 12, 2021?

6 (A) No, to the contrary, the State of California's Employment Development Department
7 (EDD) states "California unemployment rate improves to 8.5% in February"⁷. The
8 same webpage shows the unemployment rate trending downward in 2021. In fact,
9 the unemployment rate was 9.0% in January 2021 and 8.5% in February 2021. The
10 same website states "Employers gained 141,000 nonfarm payroll jobs"⁸.

11
12 Also a UCLA study projects record growth in 2021. "According to the national
13 forecast, there will be 6.3% growth in 2021, 4.6% growth in 2022 and 2.7% growth in
14 2023."⁹ Cal Advocates use of historic 'cherry picked' data from the 'worst of times'
15 during the height of the pandemic in 2020 is not evidence nor does it support Cal
16 Advocates outlook on the economy for 2021, 2022, and 2023.

17
18
19
20
21
22 ⁵ <https://www.edd.ca.gov/newsroom/unemployment-february-2021.htm> (captured April 6, 2021)

23 ⁶ <https://covid19.ca.gov/> (captured April 6, 2021)

24 ⁷ <https://www.edd.ca.gov/newsroom/unemployment-february-2021.htm> (captured April 6, 2021)

25 ⁸ Ibid.

26 ⁹ [UCLA Predicts US Economy Will Have Record Growth in 2021 \(spectrumnews1.com\)](https://spectrumnews1.com) (captured April 23, 2021)

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 In summary, the escalation of direct costs is not only warranted, it is necessary to
2 allow GSWC to account for impending escalation as our State and our Country fully
3 reopen and the economy resurges.

4
5 (Q) Does that conclude your testimony on this matter?

6 (A) Yes.

7 8 Contingency

9
10 (Q) Do you have any concerns with the contingency rates proposed by Cal Advocates?

11 (A) Yes, Cal Advocates is proposing a contingency rate of 5% for all capital projects. Cal
12 Advocates states, “[t]he Commission should: Adjust GSWC’s contingency factors to a
13 uniform 5% for all capital projects, pipeline, and blankets, including all projects that
14 are in CWIP accounts, consistent with the Commission’s previous holdings for
15 GSWC’s contingency.”¹⁰

16
17 GSWC does not agree with Cal Advocates’ recommendation. As stated in my
18 Prepared Testimony, “GSWC uses a 5% contingency within its proposed budget
19 estimates for pipeline projects and Blankets, and a 10% contingency for non-pipeline
20 projects [as] non-pipeline projects have a lower risk tolerance requiring a greater
21 amount of contingency. These figures are not only standard practice within the
22 industry, they are also prudent and in the best interest of the rate payers, as a 5-10%

23
24
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26 ¹⁰ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation vii:6-10.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

contingency is a fair balance between the risk of unforeseen events and an overly conservative budget.”¹¹

Pipeline projects consist primarily of one significant cost component, the labor and materials necessary to install a certain diameter of pipe that is simply multiplied for hundreds or thousands of feet for a typical main extension project. This allows GSWC to accept a higher risk tolerance and use a lower contingency rate of 5%. A plant project has multiple cost components, pieces of equipment with differing lead times and skilled trades involved that requires significant coordination during construction to achieve a successful project. This requires GSWC to use a lower risk tolerance and in turn a higher contingency rate.¹²

(Q) You state that GSWC’s proposed contingency rates are standard practice within the industry. Please explain.

(A) Yes, as previously stated in my Prepared Testimony, the Association for the Advancement of Cost Engineering (AACE) provides an accuracy range for various types of Capital between +30% to -5%.¹³ GSWC’s proposed rates of 5% for pipelines and 10% for plant projects is well within this range.

It should also be noted that the CPUC has adopted higher contingency rates than what GSWC is proposing for other Class A water utilities as noted below:

¹¹ Prepared Testimony of Robert Hanford and Mark Insco at 17:3-8.

¹² *Id* at 16:18-20.

¹³ *Id* at 16: 1-2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

- 1 • In D.09-07-021, California American Water's Application for rate increases in its
2 Monterey Water District and Toro Service Area, the Commission confirmed that
3 "[w]ell rehabilitations vary significantly in cost; Cal-Am justified a 20% contingency
4 factor."¹⁴
- 5 • In D.10-12-016, California American Water's Application for a Certificate of Public
6 Convenience and Necessity in its Monterey District, the Commission confirmed
7 that "[i]t is reasonable to set the capital cost cap at the highest estimated cost,
8 including a 25% cost contingency factor, because this approach to capital cost
9 recovery strikes a fair balance that will allow certainty in project financing and
10 protection for Cal-Am ratepayers."¹⁵
- 11 • In D.20-12-007, California Water Services Company's 2018 General Rate Case,
12 the Commission adopted a settlement agreement stating, "[a]fter weighing all the
13 issues related to contingencies, the Parties agree on contingency rates for ACB
14 [Advance Capital Budget] projects between the Parties' original positions for the
15 ACB projects approved by the Commission. The Parties establish a modified
16 methodology that provides a 10% contingency for Class 4 projects, a 20%
17 contingency for Class 5 projects, and no risk premium."¹⁶
- 18 • In D.20-08-006, San Gabriel Water Company's 2019 General Rate Case, the
19 Commission adopted a settlement agreement whereby the "Settling Parties
20
21
22

23 ¹⁴ California-American Water Company, Decision 09-07-021, Findings of Fact 12. at 138.

24 ¹⁵ California American Water Company, Decision 10-12-016, Conclusions of Law 30. at 198.

25 ¹⁶ California Water Service Company, D.20-12-007, Settlement Agreement, at 105-106.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 agreed to apply a uniform 10 percent contingency factor for capital projects or
2 project elements for which a contingency factor is appropriate.”¹⁷

3
4 Further, Cal Advocates have proposed higher contingency rates in other proceedings
5 based upon the same AACE guidelines used by GSWC in support of its
6 recommendation. For instance, in Application 20-04-003, the Report and
7 Recommendations on the Proposed Sale of East Pasadena Water Company System
8 Assets to California American Water Company, Cal Advocates recommended that:
9 “The AACE “General Construction” Industry, with a description that includes “...utility
10 infrastructure...water pipelines...and water resources projects”, identified as
11 Recommended Practice No. 56R-08, is the most appropriate choice for this case.
12 The Class 4 expected accuracy range is defined as -10% to + 30%, or a total range
13 of 40 points. The Contingency factor should be 18%, which falls well within the
14 expected accuracy range and is calculated as 60% of the upper range limit of +30%
15 (0.6*30).”¹⁸

16
17 Budgeting for contingencies allows GSWC to ameliorate cost impacts that are
18 beyond GSWC’s ability to forecast or control. These include: extensive state and
19 local permitting requirements, long lead-times to procure certain types of equipment,
20 the need to acquire real property or easements, operational constraints, the limited
21 availability of qualified contractors in the vicinity of a project, and the requirements of,

22
23 ¹⁷ San Gabriel Water Company, D.20-08-006 at 21.

24 ¹⁸ Application 20-04-003, the Report and Recommendations on the Proposed Sale of East Pasadena Water
25 Company System Assets to California American Water Company at 2-4:16-22.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 or a lack of cooperation from, third parties, such as other utilities (for example, in
2 connection with securing rights-of-way or electrical service necessary to the
3 operation of the improvement.¹⁹

4
5 As GSWC's proposed contingency rate of 10% for non-pipeline projects is
6 reasonable as compared to contingency rates adopted by the CPUC in prior
7 proceedings, the CPUC should approve GSWC's proposed contingency rate for non-
8 pipeline projects.

9
10 (Q) Could you please respond to the Cal Advocates position that higher contingency
11 rates sanction cost overruns?

12 (A) Cal Advocates fails to understand the nature and purpose of using a contingency rate
13 for capital expenditures. In order to develop its capital budget, GSWC uses historical
14 data for cost estimates and provides reasonable specificity of cost items in the
15 preliminary cost estimates based on the project concept.

16
17 In addition, the Company includes a contingency component to account for
18 uncertainties with regards to the time, materials and associated costs of capital
19 projects and blanket budgets. When these uncertainties materialize, it is not
20 necessarily the case that a cost overrun incurred; more likely, it is the normal and to
21 be expected result of reconciling estimates based on imperfect information with real
22 world, actual construction efforts. In fact, if Cal Advocates' view were adopted, it
23 would contradict the long-standing and widely held custom in the construction
24

25
26 ¹⁹ Rebuttal Testimony of Elizabeth V. McDonough and Dane T. Sinagra at 6.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 industry, which is to consider a contingency factor to be a regular part of cost
2 estimation and not an invitation for cost overruns. Finally, it is worth noting that the
3 contingency factor is used for estimating purposes only; once GSWC actually
4 constructs a capital project (whether recurring or blanket), GSWC will record in rate
5 base the actual cost it incurs with respect to such capital projects, whether costs are
6 higher or lower than the budgeted amount adopted in the proceeding.

7
8 (Q) Cal Advocates makes much of the Commission's decision from GSWC's 2014 GRC
9 adopting a 5% contingency factor for GSWC. What is your reaction to that?

10 (A) In the 2014 GRC, GSWC proposed a contingency rate of 10% for all capital
11 expenditures; blanket, pipeline and other plant. Decision D.16-12-067 established a
12 5% contingency rate for all capital expenditures.²⁰ It is important to note, however,
13 that the Commission's decision in 2014 was made, and its reasoning was offered, in
14 the context of our request for a 10% contingency across all capital projects. In this
15 proceeding we have accepted a 5% contingency for pipeline and blanket projects,
16 but ask that the Commission evaluate our request for a 10% contingency in
17 connection only with other plant (non-pipeline and non-blanket projects). As
18 previously explained, there are unique uncertainties associated with the other plant
19 projects that warrant a higher contingency than for pipeline and blanket projects.

20
21 (Q) Does that conclude your testimony on this matter?

22 (A) Yes.
23
24
25

26 ²⁰ D.16-12-067 at 156.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Pipeline Management Program

(Q) What would you like to discuss next?

(A) I would like to discuss the budget recommendations in the Report and Recommendations on Pipeline Replacement (“Report”) from Cal Advocates.

(Q) What are Cal Advocates’ recommendations regarding the requested pipeline replacement projects of GSWC?

(A) Cal Advocates’ Report makes eight recommendations concerning GSWC’s Pipeline Management Program (“PMP”), each of which is flawed. Those recommendations are:

- 1) GSWC should use a condition-based approach to pipeline replacement rather than an age-based approach;
- 2) GSWC’s proposed project budgets should be reduced, because GSWC unnecessarily accelerated its rate of pipeline replacement;
- 3) GSWC should repair rather than replace its pipelines, because repair is more cost-effective;
- 4) GSWC’s proposed project budgets should be reduced, because GSWC over-estimated its pipeline replacement costs;
- 5) GSWC should adopt the approach taken in the 2019 Mesa Water study discussed by Cal Advocates in the Report;
- 6) GSWC should utilize the 2002 cost-benefit analysis for leak versus replacement costs developed by the United States Environmental Protection Agency (“EPA”);
- 7) GSWC’s proposed project budgets should be reduced, based on GSWC’s Infrastructure Leakage Score (“ILI”) in Regions II and III; and

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8) GSWC should reduce its average annual pipeline replacement rate to 0.8%, which Cal Advocates describes as the utility average based on a statistic extracted from a 2018 Utah State study on water main break rates.

1) Cal Advocates mischaracterizes GSWC's methodology in asserting that GSWC should use a condition-based approach rather than an age-based approach.

(Q) Please summarize Cal Advocates' recommendation regarding GSWC's approach to pipeline replacement.

(A) Cal Advocates asserts: "In the next GRC application, the Commission should require GSWC to use a condition-based approach to develop its pipeline replacement rates. Currently GSWC relies solely on an age-based analysis."²¹ Cal Advocates' assertion ignores the critical role that pipeline conditions play in overall risk assessment and in prioritizing which pipes GSWC replaces pursuant to its PMP.

(Q) Is it correct that GSWC derives its annual pipeline replacement length using the KANEW software and that KANEW's recommendations "are solely based on generalized estimated pipeline lifetimes," as Cal Advocates contends?²²

(A) Age and material type are the inputs to the KANEW modeling. That is, it is correct that the KANEW modeling relies on age-based analysis for each type of pipe, but Cal Advocates ignores the fact that KANEW modeling is only one of the three analyses comprising GSWC's PMP, and the other two analyses consider multiple factors.

²¹ Cal Advocates' Report and Recommendations on Pipeline Replacement at 1.

²² *Id.* at 2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 GSWC's use of three analyses is explained in the Prepared Testimony of Robert
2 Hanford and Mark Insko, as follows:

3 "The GSWC Pipeline Management Program consists of three
4 components: a risk assessment of existing systems, KANEW
5 modeling, and pipeline prioritization. The risk assessment of the
6 GSWC pipeline systems occurred during the overall risk assessment of
7 GSWC systems. The approach used to assess the risk of these
8 systems is explained in the risk assessment portion of the rate case.
9 GSWC used the KANEW model, which is an asset management
10 software program identified in the *Managing Public Infrastructure*
11 *Assets Handbook* (NACWA, 2002) and in *Implementing Asset*
12 *Management - A Practical Guide* (Ispass, 2007), to identify pipe
13 replacement/installation rates. Data used in the KANEW model was
14 originally developed for use in hydraulic models associated with the
15 2008-10 GSWC Master Plans, and the KANEW analysis was updated
16 using GIS data in 2019. Results of the KANEW analysis are
17 summarized in TABLES 5.2 to 5.4.

18
19 The pipeline projects were prioritized using a quantitative tool that
20 prioritized the projects in each distribution area based on their total
21 benefit score. The long-term and short-term projects identified in the
22 Master Plans were evaluated separately. The pipelines identified for
23 replacement/installation in each Rate Case year (2018-2020) were
24 based upon the results of the medium estimate of life expectancy from
25 the KANEW analysis (see TABLE 4.2). TABLES 5.5 to 5.7 provide the
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 total length by distribution area for proposed pipeline replacements/
2 installations for each of the Rate Case years. The complete list of
3 prioritized projects and a summary list of projects proposed for each
4 Rate Case year are provided in Appendices to this report.”²³

5
6 As such, GSWC’s PMP relies on three analyses: risk assessment, KANEW modeling,
7 and pipeline prioritization. The California Public Utilities Commission (“Commission” or
8 “CPUC”) approved this approach in Decision 16-12-067, stating: “Examining Golden
9 State’s PMP, we find that the three separate analyses incorporated in the PMP
10 comprised of a risk based assessment, a rate of replacement analysis, and pipeline
11 replacement analysis, presents a reasonable methodology of analyzing and determining
12 pipeline replacement projects.”²⁴ The information considered within GSWC’s process
13 includes risk reduction, pipeline material, pipeline age, hydraulic and fire flow
14 deficiencies, and leak frequency.²⁵ In turn inputs from these four criteria are used in the
15 pipeline prioritization tool described in section 5.2.3 of the PMP.²⁶ With regard to pipeline
16 conditions specifically, GSWC already considers pipeline conditions when determining
17 which pipes to replace pursuant to its PMP, as this is discussed at length in sections 5.2

20 ²³ GSWC Prepared Testimony of Robert Hanford and Mark Insco – Attachment E (Pipeline Management
21 Program) at III-IV.

22 ²⁴ Decision 16-12-067 at 52.

23 ²⁵ GSWC Prepared Testimony of Robert Hanford and Mark Insco – Attachment E (Pipeline Management
24 Program) at 5-2 to 5-3.

25 ²⁶ *Id.*

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and 5.3 of the PMP.²⁷ So Cal Advocates' characterization of the PMP as solely an age-based analysis is not accurate.

2) Cal Advocates incorrectly asserts that GSWC unnecessarily accelerated the construction of its replacement pipelines.

(Q) Please summarize Cal Advocates' assertion that GSWC unnecessarily accelerated its rate of pipeline replacement.

(A) Cal Advocates maintains that "[f]rom 2010 through 2019, GSWC has consistently replaced significantly more pipeline lengths than approved in Commission decisions. . . . spent more on pipeline replacement than approved in Commission decisions. . . . and has accelerated its pipeline replacement through all of its Rate Making Areas."²⁸ Cal Advocates thus recommends that the Commission reduce GSWC's proposed pipeline replacement budgets for each of GSWC's ratemaking areas.

(Q) Does GSWC agree with Cal Advocates' recommendation and assertions?

(A) No. GSWC has not unnecessarily accelerated its pipeline replacement but rather has replaced pipelines in accordance with its Commission-approved PMP guidelines. This issue has been a point of disagreement between GSWC and Cal Advocates over multiple General Rate Cases ("GRCs").

²⁷ *Id.*

²⁸ Cal Advocates' Report and Recommendations on Pipeline Replacement at 10.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

GSWC initially developed its PMP in conjunction with the 2008 Regions II and III GRC and the 2010 Region I GRC. The PMP, as originally developed, included KANEW recommendations for each system from 2009-2030 for Regions II and III, and from 2010-2035 for Region I (each of Region 1, Region II and Region III, a “Region”). After approximately 10 years, prior to the 2017 GRC, GSWC reviewed and re-evaluated PMP progress based on the KANEW recommendations using the “medium” pipe life expectancy assumption for all three Regions and determined that GSWC had fallen behind on pipe replacement in comparison to the projected replacement need. Using the medium life expectancy assumption—an assumption that Cal Advocates (formerly known as Office of Ratepayer Advocates (ORA)) did not dispute at the time²⁹—the total Company-wide pipeline replacement recommended by the KANEW model through 2020 was over 344 miles of pipe. In 2017, based on the proposed pipeline replacement in the 2017 GRC and the actual pipeline replacement since 2008, GSWC was projected to replace 327 miles of pipe through 2020 – an aggressive replacement schedule, but still 17 miles less than the quantities recommended by the KANEW model using the medium life expectancy.

As Cal Advocates acknowledged at the time, GSWC’s pipeline replacement plan is equivalent to a Company-wide replacement rate of approximately 1% per year,³⁰ or a 100-year replacement cycle. In fact, in this GRC, Cal Advocates’ own analysis of GSWC’s historical replacement rates shows that, for all but one of the ratemaking

²⁹ A.17-07-010, Office of Ratepayer Advocates Report on Plant - General Issues (Feb. 16, 2018) at 13.

³⁰ *Id.* at 16, Table 3-3. This shows a total Company annual replacement rate of 0.99%.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 areas, the 10-year average did not exceed 1% per year.³¹ A recent Utah State University
2 study utilized by Cal Advocates to draw a statistic used in Cal Advocates Report
3 recommends a replacement rate that is no lower than 1%, stating:

4 ... an average of 0.8% of installed pipe is replaced each year
5 [across the USA and Canada]. This equates to a 125-year
6 replacement schedule. Pipe replacement rates should be between
7 1% and 1.6%, equivalent to 100-year and 60-year depreciation
8 and/or replacement schedules, respectively. In general, pipe
9 replacement rates need to increase.”³²

10
11 GSWC’s replacement rate is, therefore, in-line with the recommendations in the Utah
12 State University study (“Utah Study”) cited by Cal Advocates. Accordingly, Cal
13 Advocates’ recommendation that that the Commission reduce GSWC’s proposed
14 pipeline replacement budgets, on the grounds that GSWC’s replacement rate is too
15 high, is contrary to the Utah Study that Cal Advocates cited purportedly to support its
16 recommendations in this proceeding. I will discuss the incongruence between Cal
17
18

19 ³¹ Cal Advocates’ Report and Recommendations on Pipeline Replacement at 11, Table 1-6 (Arden-Cordova
20 recorded pipeline replacement rate of 0.63%); at 15, Table 1-9 (Los Osos recorded pipeline replacement rate of
21 0.66%); at 18, Table 1-12 (Santa Maria recorded pipeline replacement rate of 0.56%); at 21, Table 1-15 (Simi
22 Valley recorded pipeline replacement rate of 0.29%); at 24, Table 1-18 (Region II recorded pipeline replacement
23 rate of 1.90%); and at 29, Table 1-22 (Region III recorded pipeline replacement rate of 1.00%).

24 ³² Utah State University Buried Structures Laboratory, *“Water Main Break Rates in the USA and Canada: A*
25 *Comprehensive Study”* (March 2018) at 6.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Advocates' recommendations regarding GSWC's PMP and the findings in the Utah Study in more detail below.

Prior to the instant GRC, GSWC updated the KANEW analysis using GIS data in 2019.³³ However, GSWC's overall goals have not changed. By continuing to implement a replacement schedule based on the "medium" (or "average," in updated KANEW terminology) pipe life expectancy assumption for all three Regions, GSWC seeks to be proactive in its replacement of pipelines and to maintain a steady replacement rate for GSWC's infrastructure assets.

(Q) Why does GSWC's PMP employ a proactive approach?

(A) The alternative would be a reactive approach to managing infrastructure assets, which ultimately would result in far greater costs to ratepayers. As stated by the American Water Works Association ("AWWA"), "Overlooking or postponing infrastructure renewal investments in the near term will only add to the scale of the challenge we face in the years to come. Postponing the investment steepens the slope of the investment curve that must ultimately be met."³⁴ Accordingly, if GSWC does not take a proactive and methodical approach to replacing pipelines, our ratepayers will potentially face much larger rate increases as pipeline failures dramatically increase in frequency. The

³³ GSWC Prepared Testimony of Robert Hanford and Mark Insco – Attachment E (Pipeline Management Program) at 2-1.

³⁴ American Water Works Association, *Buried No Longer: Confronting America's Water Infrastructure Challenge* at 13 (2011).

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Commission agreed with this reasoning when it approved GSWC's PMP in Decision 16-12-067, stating:

The underlying principle of the PMP is that aging pipelines must be replaced systematically in order to ensure that replacement and costs associated with such, does not occur at once or within a short period. Because a majority of pipelines are expected to reach the end of their useful lives at around the same time, it would be imprudent to wait until this occurs without causing rate shock, severe service disruption, or even system failure.³⁵

By proactively predicting when pipelines need replacement and spreading those replacements over multiple years, GSWC's PMP allows GSWC to invest a prudent amount of money in pipeline replacement each year. This prevents massive pipeline replacements over a short period of time in the future, which would require capital that far exceeds available revenues, and avoids the accompanying rate shock to customers. This is why GSWC seeks to achieve and maintain a replacement rate, as determined by the KANEW analysis, of approximately 1% of its pipelines per year (equating to a pipeline life expectancy of 100 years). This is a reasonable minimum rate that would allow GSWC to continuously turn over pipeline assets at the time or just before they fail, and thereby maintain its pipeline infrastructure and provide affordable and reliable service to ratepayers.

³⁵ Decision 16-12-067 at 52-53.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) You said that GSWC “seeks to achieve and maintain” a replacement rate of 1% per
2 year. If the Commission grants GSWC’s requests with regard to the PMP in this GRC,
3 would GSWC achieve that 1% target?

4 (A) GSWC would not achieve the 1% target on a Company-wide basis, but GSWC’s
5 requests with regard to the PMP balance prudent and methodical pipe replacement with
6 financial considerations. The rate impact of any comprehensive pipeline replacement
7 strategy can be fairly significant. In fact, the updated KANEW analysis for 2021-23
8 recommends a Company-wide pipeline replacement rate of approximately 1.3% per
9 year (equating to an overall pipeline life expectancy of 76 years). GSWC is requesting a
10 Company-wide pipeline replacement rate of only approximately 0.74% per year³⁶
11 (equating to an overall pipeline life expectancy of 135 years).³⁷ This pipeline life
12 expectancy far exceeds the life expectancy of all pipeline materials currently used by
13 GSWC but provides a replacement rate that is financially sustainable. On the other
14 hand, Cal Advocates’ recommendation—based on the individual pipelines that they
15 recommend the Commission disallow—would result in a Company-wide replacement
16
17
18
19

20 ³⁶ 63.8 miles of proposed pipeline replacements ÷ 3 years ÷ approximately 2,870 miles of pipeline. If new pipeline
21 installations are also included (i.e., where an existing pipeline is not being replaced), the total length of proposed
22 pipeline in the 2020 GRC is 67.9 miles, and the Company-wide replacement/installation rate would be 0.79% per
23 year.

24 ³⁷ 100 years ÷ 0.74% replacement rate per year. If new pipeline installations are also included and following this
25 same calculation, the Company-wide pipeline life expectancy would be 127 years.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

rate of approximately **0.08% per year**,³⁸ or a pipeline life expectancy of **1,250 years**.³⁹

This is obviously unreasonable and ultimately unduly burdensome to GSWC's current and future customers. Instead of recommending the *proactive* replacement of pipelines and seeking to maintain a steady replacement rate for GSWC's infrastructure assets, an approach approved by the Commission in Decision 16-12-067, Cal Advocates' recommendation simply "passes the buck" to future GSWC customers and forces GSWC to manage its infrastructure assets *reactively* and eventually at greater cost.

GSWC's overall goal is to match the KANEW-recommended rates with equivalent pipeline replacement/installation. Balancing the factors listed above, GSWC's "order of priority" for matching the recommended totals are:

1. By system
2. By Customer Service Area ("CSA")
3. By Region
4. Company-wide

³⁸ Report at Section III.B-G (Region I Pipeline Replacement; 1.8 miles), Section III.H (Region II Pipeline Replacement; 0 miles) and Section III.I (Region III Pipeline Replacement; 4.9 miles); 6.7 miles of proposed pipeline replacements ÷ 3 years ÷ approximately 2,870 miles of pipeline. If new pipeline installations are also included in Region I, the total length recommended by Cal Advocates is 11.6 miles; following this same calculation, the Company-wide replacement/installation rate would be 0.13% per year.

³⁹ 100 years ÷ 0.08% replacement rate per year. If new pipeline installations are also included in Region I and following this same calculation, the Company-wide pipeline life expectancy would be 769 years.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Even so, GSWC's Company-wide proposed three-year pipeline replacement and
2 installation totals do not meet its full replacement and installation needs due to budget
3 considerations within each system/CSA/Region. Simply put, GSWC must balance the
4 pipeline replacement rates recommended by the KANEW analysis with the need for
5 other capital expenditures required in a particular ratemaking area.

6
7 In sum, GSWC's PMP is based on programs developed and supported by AWWA and
8 The Water Research Foundation and has been approved by the Commission as "a
9 reasonable methodology of analyzing and determining pipeline replacement projects."⁴⁰
10 In addition, GSWC's implementation of the PMP conforms with the recommended
11 replacement rates and protocols for identifying the segments of pipelines to be
12 replaced. GSWC's PMP is a comprehensive, quantitatively-based, financially-
13 sustainable, long-term pipeline management program that provides ample justification
14 for the pipeline projects proposed by GSWC in this GRC. In light of this, Cal Advocates'
15 assertion that GSWC has unnecessarily accelerated its rate of pipeline replacement is
16 simply wrong.

17 18 **3) Cal Advocates simplistically argues that it is more cost-effective to repair pipelines** 19 **rather than replace pipelines.**

20
21 (Q) Please summarize Cal Advocates' assertion that it is more cost-effective to repair rather
22 than replace pipelines.

23
24
25 ⁴⁰ Decision 16-12-067 at 52.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Cal Advocates asserts: “GSWC has been spending orders of magnitude more in pipeline replacement than it is losing in leak associated costs.”⁴¹ Cal Advocates then points to data comparing the total costs associated with the leaks with the recorded pipeline expenditures. However, Cal Advocates’ simplistic analysis fails to recognize that one of the reasons water leak costs are lower than pipeline replacement expenditures is that, in accordance with its PMP, GSWC has been prudently replacing pipes in order to prevent costly leaks. Cal Advocates’ Tables 1-3, 1-4, and 1-5 reveal a remarkable reduction in leaks in all three of GSWC’s Regions.⁴² In Table 1-5, leaks in Region III decreased from 861 in 2010 to 251 in 2019, which is a 71% reduction in the number of leaks.⁴³ Moreover, Cal Advocates fails to consider the many monetary and non-monetary costs that result from pipeline failures and unplanned repairs.

(Q) What are the costs associated with an unplanned repair of a pipeline?

(A) In addition to the high monetary costs for each repair, GSWC incurs significant non-monetary costs when performing an unplanned repair of a pipeline. First, there is the inconvenience to our customers from the disruption to their access to potable drinking water. Second, the availability of necessary fire flows is also disrupted by unplanned outages due to leaks. Third, unplanned leaks require GSWC to patch City and County right-of-ways in a random manner, which disrupts the capital improvements and maintenance procedures in City and County Pavement Management Systems. For

⁴¹ Cal Advocates’ Report and Recommendations on Pipeline Replacement at 5.

⁴² *Id.* at 6-8.

⁴³ *Id.* at 8.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 example, the unplanned repair of the pipeline may force GSWC to repair a recently
2 paved street that is currently under a paving moratorium. Fourth, the disruptions
3 resulting from an unplanned repair portray GSWC and the Commission in a less than
4 flattering manner in the public eye.

5
6 Cal Advocates' analysis is also flawed because it merely compares the cost per leak
7 with the cost of pipeline replacement on a unitized basis, i.e., cost per lineal foot basis.
8 This demonstrates Cal Advocates' lack of understanding of how a potable water system
9 is operated, maintained, and managed from a holistic perspective. Leak repairs are
10 typically performed on an emergency basis, often during non-normal working hours or
11 days. As a result, material and labor costs are incurred at a premium due to the need to
12 quickly find available contractors or staff to make repairs, potentially at over-time or
13 holiday rates, and to obtain the needed material, supplies, and equipment on an
14 expedited basis. In order to allow for a meaningful comparison, Cal Advocates should
15 have calculated the cost per foot of pipeline replaced on a repair basis with the cost per
16 foot of pipeline replaced in accordance with GSWC's PMP.

17
18 When pipelines are replaced proactively in accordance with GSWC's PMP, it is far less
19 expensive because GSWC is able to: (1) use the competitive bidding process to obtain
20 lower per lineal foot pipeline replacement costs; (2) perform pipeline installation work
21 during normal business hours and days; and (3) have traffic control plans in place in the
22 local jurisdiction to minimize street circulation patterns so work can be completed most
23 quickly and efficiently. In addition to these tangible monetary benefits, when pipelines
24 are replaced proactively, GSWC is able to minimize the inconvenience to customers of
25 short-term disruptions to water service by performing tie-ins to existing mains in
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 advance of the replacement work. None of these factors were examined or even
2 mentioned in Cal Advocates' analysis.

3
4 Examples from our Culver City system will illustrate the high costs of pipeline repair
5 projects versus planned construction projects. The Culver City system provides a
6 useful comparison because this system is representative of the pipe and field conditions
7 encountered in one of our highly urbanized service areas in Los Angeles County, and
8 this GRC includes a large number (six) of individual pipeline projects in the Culver City
9 system. When examining the total costs for two leak repair projects in our Culver City
10 system, work order 23611480 and work order 23611572, the cost impact of the
11 aforementioned factors associated with repair projects becomes readily apparent. In
12 work order 23611480, three feet of 4" PVC main pipe were replaced for a total project
13 cost of \$30,912.00 or \$10,304.00⁴⁴ per lineal foot. In work order 23611572, three feet of
14 8" PVC pipe were replaced for a total project cost of \$61,724.55 or \$20,574.85⁴⁵ per
15 lineal foot. By comparison, a review of the preliminary cost estimates for the six area
16 main pipeline projects proposed in the Culver City system shows (i) the highest unit cost
17 for a pipeline project is \$793 per lineal foot, and (ii) the average cost for the remaining
18 five projects is \$420 per lineal foot.⁴⁶

19
20 In some instances, it is quicker and less expensive to install a repair clamp rather than
21 replacing the pipe to repair the leak, but this is only a short-term solution. This entails
22

23
24 ⁴⁴ See "23611572 and 23611480 PowerPlan screen shot.pdf," attached hereto as **Attachment 1**.

25 ⁴⁵ *Id.*

26 ⁴⁶ PCE_RII - Culver City (Sepulveda, Washington to Braddock)

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

installing a one-foot repair clamp that only reinforces the integrity of the distribution system in one-foot increments. And, as shown in the leak maps submitted in this GRC, after a small section of pipe is reinforced, the next weakest section will fail, which results in the need for another repair clamp, i.e., another one-foot reinforcement. Cal Advocates' approach is a textbook example of merely "*kicking the can down the road*" rather than solving the underlying root cause of the problem. As demonstrated above, repairing leaks is not an economically viable method or substitution for planned pipeline replacements.

4) Cal Advocate wrongly claims that GSWC over-estimated its pipeline replacement costs.

(Q) Is there another recommendation presented by Cal Advocates you would like to address?

(A) Yes, Cal Advocates asserts that because GSWC uses historic costs that include "all associated project costs,"⁴⁷ GSWC's inclusion of additional funds for certain forecasted aspects of the projects results in the over-estimation of pipeline replacement project costs. Although GSWC does use historic costs that include "all associated project costs", this does not ultimately result in an over-estimation of pipeline costs when GSWC includes "special circumstances" costs for certain projects that we know are going to be costlier than the average pipeline project. This is because when GSWC analyzed the historic costs used in the preliminary cost estimates ("PCEs") of the requested pipeline projects, in addition to taking into account the "special

⁴⁷ Cal Advocates' Report and Recommendations on Pipeline Replacement at 12.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 circumstances” costs associated with the projects from which the historic costs were
2 derived, we also analyzed the effect of market impacts in determining costs that were
3 higher or lower than what was originally estimated. Due to a multitude of factors
4 impacting a projects costs, the overall impact of special circumstances applied to
5 historic project costs is *de minimis* in nature. But because historic costs reflect market
6 impacts that both increase and reduce project costs overall, they are not sufficient to
7 cover the anticipated costs of projects that we know will be impacted by circumstances
8 that will make them costlier than the average project. Therefore, if we rely solely on
9 historic costs when developing our PCEs, the budgets for pipelines with significant
10 special circumstances will be insufficient to cover the actual costs of completing those
11 projects.

12
13 Taking this into account, the PCEs for pipeline projects submitted in this GRC show that
14 GSWC carefully analyzes when such “special circumstances” must be included in order
15 to account for factors that could increase the cost of a particular pipeline project.
16 For example, there are seven proposed pipeline replacement projects in the Artesia
17 system. Three projects: (1) 175 St. AMR; (2) Elaine Ave. AMR; and (3) Roseton and
18 185th, have no special circumstances included in their PCEs and thus were based on
19 recent historical costs. However, two projects: (1) 185th and Norwalk; and (2) Aloha
20 Elementary School, have special circumstances costs because they are located
21 adjacent to a school. The remaining two pipeline projects also have special
22 circumstances costs included in their PCEs. The 205th St. AMR project has special
23 circumstances costs for easement acquisition, and the Clarkdale and 185th project has
24 special circumstances costs for the relocation of house line locations. The special
25 circumstances associated with these projects require that prudent and reasonable costs

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1 be factored into the particular project's forecasted capital budget. As such, Cal
2 Advocates' recommendation that only historical costs should be utilized as the basis for
3 forecasting fails to account for the additional costs associated with these special
4 circumstances.

5
6 Cal Advocates' use of historical averages is also fundamentally flawed.⁴⁸ For the Arden
7 Cordova system, Cal Advocates used historic costs dating from 2010 through 2019 and
8 calculated the average cost per foot for those 10-years' worth of projects. Cal
9 Advocates then proclaimed that the results of this calculation is the average cost for
10 pipeline replacement that GSWC should use for pipeline replacement in 2021, 2022,
11 and 2023. However, Cal Advocates provides no explanation as to how historic costs
12 dating from as far back as 13 years prior to when a pipeline project would be
13 constructed (2023) should have any relevance to the contemporary average cost for
14 pipeline replacement.

15
16 One of many factors that Cal Advocates fails to consider in this regard is that due to
17 budget constraints of cities and counties, these entities now require water utilities
18 replacing pipelines to repave far more than the trench cut width within the street, as was
19 common practice five years ago. GSWC is now typically required to pave half a street or
20 even slurry -seal the entire street. These recent changes have increased the costs
21 associated with pipeline projects. Other factors such as the escalation in construction
22 costs and materials, as well as these enhanced paving requirements, are neither
23
24

25
26 ⁴⁸ *Id.* at 13, Table 1-7.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

examined nor mentioned in Cal Advocates' approach to calculating pipeline replacement costs.

5) Cal Advocates makes flawed recommendations based on the Mesa Water study.

(Q) Is there any other concern you have with Cal Advocates' recommendations?

(A) Yes, Cal Advocates criticizes the PMP by stating: "KANEW's one-dimensional approach is overly simplistic and leads to unnecessary pipeline replacement and unnecessary ratepayer cost."⁴⁹ Cal Advocates then cites an article in the AWWA Journal, *Pipeline Integrity Testing to Assess the Useful Life of Pipeline Infrastructure* ("Mesa Study"), and attempts to apply the methodology and results of that study to GSWC's PMP. However, the findings in the Mesa Study are inapplicable to GSWC's PMP. The Mesa Study examines asbestos-cement pipe, as it specifically states on its title page: "Asbestos-cement pipe was the primary focus of the testing program."⁵⁰ The Mesa Study explains that "the vast majority of Mesa Water's pipeline infrastructure is asbestos-cement pipe (ACP) that was installed after 1950" and "because 74% of the system was ACP, it was the initial focus of the Pipeline Integrity Program and is the focus of this article."⁵¹

Cal Advocates attempts to apply the Mesa Study's methodology, which focuses on the replacement of asbestos-cement pipe, to GSWC's PMP, where the pipe materials

⁴⁹ *Id.* at 3.

⁵⁰ AWWA Journal, *Pipeline Integrity Testing to Assess the Useful Life of Pipeline Infrastructure*, Vol. 111, No. 9 (September 2019).

⁵¹ *Id.* at 14.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 scheduled for replacement are primarily cast-iron and steel pipes. Appendix D of
2 GSWC's Prepared Testimony of Robert Hanford and Mark Insko, Attachment E
3 (Pipeline Management Program), as well as the individual pipeline projects' PCEs and
4 scope drawings, indicate that GSWC proposes to replace 358,544 lineal feet of pipe, of
5 which only 36,360⁵² lineal feet or 10.1% is asbestos-cement pipe. Of this number,
6 GSWC seeks to replace the majority of these pipelines, 88.4% or 32,160 lineal feet,
7 because of mitigating hydraulic inefficiencies due to small diameter pipe, leaks, location
8 (e.g., backyard mains), water quality issues, or age of the pipe. Thus, GSWC is
9 replacing only 4,200 lineal feet of asbestos-cement pipe, or 1.2% of GSWC's total
10 proposed pipeline replacements, due to characteristics inherently unique to asbestos-
11 cement pipe. Therefore, if the results of the Mesa Study were applied to GSWC's PMP,
12 only a little over 1% of GSWC's scheduled pipeline replacements would be suitable for
13 the analytical techniques used in the Mesa Study.

14
15 Furthermore, there are significant differences in the age and physical characteristics of
16 the asbestos-cement pipe tested in the Mesa Study and the cast iron pipe and steel
17 pipes recommended to be replaced pursuant to GSWC's PMP. The vast majority of the
18 asbestos-cement pipe in the Mesa Water District was installed after 1950, whereas the
19 cast iron pipe and steel pipe in GSWC's system were installed in the 1930s and 1940s.
20 In addition, the Mesa Study applied the Echologics e-Pulse testing method to assess
21 the condition of the asbestos-cement pipe in the Mesa Water District, but this method
22 cannot be used on cast iron pipe and steel pipe. Cast iron pipe is not subject to the two-
23 step corrosion process described in the Mesa Study, where the free lime, in the cement
24

25
26 ⁵² EXCEL file "2020 GRC proposed Pipelines.", attached hereto as **Attachment 3**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 that comprises the majority of the material in the pipe, is converted to calcium carbonate
2 and then the calcium carbonate is subject to dissolution and transport. Cast iron and
3 steel pipes are constructed of a ferrous alloy material and are not subject to his
4 particular failure mechanism.

5
6 Cal Advocates' failure to recognize this indicates a lack of understanding of GSWC's
7 pipeline system, as well as basic engineering principles.

8
9 The Mesa Study discusses another condition -based pipeline assessment tool, the
10 Schlick failure criterion for critical wall thickness, but again, the Mesa Study discusses
11 this methodology only in connection with assessing asbestos-cement pipe, and even
12 when assessing asbestos-cement pipe, the Mesa Study acknowledges that this
13 methodology has significant limitations. The Mesa Study explains that these limitations
14 include that the criterion does not take into account how the pipes perform when there is
15 water pressure in the pipes supporting some of the load, that the kinds of failures it
16 analyzes are not the typical failure modes for asbestos-cement pipe under normal
17 operating conditions, and that asbestos-cement pipe corrosion is believed to slow over
18 time, rather than degrading at a constant rate.⁵³ But in any event, as explained above,
19 GSWC is replacing only 4,200 lineal feet of asbestos-cement pipe, or 1.2% of GSWC's
20 total proposed pipeline replacements, due to characteristics inherently unique to
21 asbestos-cement pipe. Thus, only that very small percentage of GSWC's pipe would be
22 suitable for the non-destructive asbestos-cement pipe testing method utilized in the
23

24
25 ⁵³ AWWA Journal, *Pipeline Integrity Testing to Assess the Useful Life of Pipeline Infrastructure*, Vol. 111, No. 9
26 (September 2019) at 19-20.

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Mesa Study. On the whole, the methodology and findings of the Mesa Study are simply inapplicable to GSWC's pipeline system.

For these reasons, Cal Advocates' recommendation to adopt the approach taken in the Mesa Study is severely flawed and should not be used as any basis for denying GSWC's requested pipeline replacement projects.

6) Cal Advocates makes a flawed recommendation that GSWC should utilize the EPA's cost-benefit analysis for leak versus replacement costs.

(Q) Does Cal Advocates present another recommendation you would like to address?

(A) Yes, Cal Advocates argues that GSWC should adopt the EPA's break-even analysis and compare the costs associated with leaks with the costs to replace a pipeline.⁵⁴

However, Cal Advocates argument ignores that leak frequency is already an important consideration within GSWC's PMP that GSWC employed to determine which pipelines should be replaced during this GRC cycle. Specifically, GSWC developed, used, and weighted the following four evaluation criteria to assess each pipeline project:

- Risk Reduction (given a 30% weighting factor);
- Hydraulic and Fire Flow Deficiencies (given a 20% weighting factor);
- Pipe Material Type and Age (given a 25% weighting factor); and
- Leak Frequency (given a 25% weighting factor).

As such, the leak frequency condition assessment comprises 25% of the determination as to whether a pipeline should be among those replaced during a GRC cycle. As such,

⁵⁴ Cal Advocates' Report and Recommendations on Pipeline Replacement at 8.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 GSWC does consider the relative costs of water losses resulting from leaks as an
2 important driver within its PMP.

3
4 Failing to repair leaks is counter to water conservation objectives – such that the costs
5 of water losses go beyond monetary costs. The EPA’s “break-even” analysis cited by
6 Cal Advocates dates back to 2002. Nineteen years later California is now facing
7 droughts on an ongoing basis, as the new “normal”, due to climate change as opposed
8 to the climate conditions in 2002. On March 22, 2021, GSWC received a letter from the
9 State Water Resources Control Board advising the company that 95% of the state was
10 in moderate to exceptional drought and that the company should start planning for
11 potential water supply shortages later this year.⁵⁵

12
13 Given the ever-increasing drought conditions resulting from climate change, it would not
14 be good policy only to fix pipes if the costs of the repairs are lower than the costs of the
15 water lost, and GSWC does not believe the Commission would endorse such a policy.

16
17 (Q) Does GSWC’s approach to addressing leaks and controlling water loss emphasize
18 expensive pipeline replacements in lieu of less costly pipeline repairs?

19 (A) No. Cal Advocates implies that GSWC’s current water loss control program favors more
20 expensive pipeline replacements instead of less costly leak repairs (and associated

21
22
23
24 ⁵⁵ Letter from the State Water Resources Control Board to Golden State Water Company, dated March 22, 2021,
25 with the subject line: “*Ongoing Dry Conditions in Most California Watersheds – Prepare for Drought Impacts*
26 *Statewide*”, attached hereto as **Attachment 2**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 programs such as leak detection, pressure management, and pipeline rehabilitation),⁵⁶
2 but this is not true. GSWC has implemented leak detection programs in its distribution
3 systems and identified many leaks for repair, and GSWC performs annual water audits
4 and pressure surveys for each system as part of the Company's efforts to conduct such
5 repairs.

6
7 But for a large number of pipelines within GSWC's systems, repairs are not feasible.
8 There are no cost-effective pipeline rehabilitation technologies (e.g., liners, grout, or
9 epoxy systems) for 12-inch and smaller diameter distribution lines, which comprise the
10 majority of GSWC's pipeline inventory. These rehabilitation technologies were
11 pioneered and are primarily used for larger (i.e., 24-inch and greater diameter)
12 transmission mains. The interiors of the larger transmission main pipelines are more
13 easily accessible, and there are minimal service connections, fire hydrant leads,
14 laterals, and inline valves to impede the rehabilitation process. To the contrary, the
15 difficulties of slip-lining, grouting, or spraying epoxy into the interior of small distribution
16 lines are essentially insurmountable. All of these methods result in prolonged and
17 unacceptable water outages, as the interior lining process not only initially blocks
18 openings to customer service lines and fire hydrants laterals but also interferes with
19 inline valves. This type of procedure would result in the stoppage of water service and
20 fire protection to GSWC's customers for a minimum of several days while the existing
21 pipeline is cleaned and lined. Any process that requires an outage of more than a few
22 hours is unacceptable.

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26 ⁵⁶ *Id.* - Section III.B at 9.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 In contrast, a typical GSWC pipeline replacement provides a relatively seamless
2 transition of service for GSWC's customers, with little or no noticeable service outage
3 during the changeover from the old main to the new main. GSWC's water loss control
4 program includes programs to find and repair pipeline leaks, but the replacement of
5 pipeline may often be the more cost-effective and, in some cases, only practical
6 solution. Accordingly, the choice may not be between repairing and replacing a pipeline,
7 but rather between replacing a pipeline and allowing precious water resources to be lost
8 to leaks, because repairs are simply not feasible.

10 **7) Cal Advocates makes flawed recommendations based on GSWC's Infrastructure** 11 **Leakage Score in Regions II and III.**

13 (Q) What would you like to discuss next?

14 (A) Cal Advocates cites the Infrastructure Leakage Score (ILI) in GSWC's 2019 AWWA
15 Water Audits for Regions II and III in support of its flawed argument that GSWC has
16 unnecessarily accelerated its pipeline replacements.⁵⁷ Although GSWC agrees with Cal
17 Advocates' statements that "[t]he ILI provides a 'highly effective' performance indicator
18 for benchmarking a utility's performance in management of real water losses"⁵⁸ and that
19 "[a]n ILI of 1.18 is near top worldwide performance in leakage control and is
20 representative of a healthy system,"⁵⁹ GSWC does not agree that the ILI in Region II or
21 Region III indicates that GSWC has unnecessarily engaged in pipeline replacement.

24 ⁵⁷ *Id.* at 25.

25 ⁵⁸ *Id.*

26 ⁵⁹ *Id.* at 26.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Rather, due to Cal Advocates' lack of understanding of the needs of GSWC's systems,
2 Cal Advocates misconstrues what an appropriate ILI for GSWC's systems would be.

3
4 Region II exemplifies the flaws in Cal Advocates' contentions. Based on a table drawn
5 from AWWA Free Water Software, Cal Advocates contends that "(a)n ILI of 3.0 to 5.0 is
6 appropriate when water resources are enough to meet water needs."⁶⁰

7
8 Cal Advocates ignores the "Financial Considerations" column in the general guidelines
9 for setting a target ILI in Figure 1-3 Target ILI Ranges.⁶¹ This recommends a target ILI
10 range of 1.0-3.0 when "water resources are costly to develop or purchase."⁶² Cal
11 Advocates fails to recognize that the majority of the water supply for Region II comes
12 from treated groundwater or imported Metropolitan Water District ("MWD") water, which
13 significantly increase GSWC's supply costs. The water sources for the eight systems in
14 Region II rely on a combination of imported water from MWD and groundwater wells.
15 MWD must import water from the Bay Delta and the Colorado River, and then treat,
16 store, and distribute the water throughout Southern California. GSWC's supply costs in
17 Region II are also more expensive due to the required treatment of groundwater. All of
18 the wells in the Artesia system require treatment for contaminants.⁶³ Five of the six
19 wells in the Bell-Bell Gardens system require treatment of groundwater.⁶⁴ The Culver
20

21 ⁶⁰ *Id.*

22 ⁶¹ *Id.* at 27.

23 ⁶² *Id.*

24 ⁶³ December 2019 Artesia Master Plan, Figure 2-2 System Schematic.

25 ⁶⁴ December 2019 Bell- Bell Gardens Master Plan, Figure 2-2 System Schematic.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

City system has no wells and must rely solely on imported water to meet demands.⁶⁵ All of the wells in the Florence-Graham system require treatment of groundwater.⁶⁶ One of the two wells in the Hollydale system have required or will require treatment of groundwater.⁶⁷ Four of the seven wells in the Norwalk system require groundwater treatment.⁶⁸ Five of the twelve wells in the Southwest system require groundwater treatment.⁶⁹ As such, of the Region II systems with groundwater wells, only the Willowbrook system has only wells that do not require treatment.⁷⁰ Given that the majority of the water supply for Region II comes from treated groundwater or imported MWD water and the associated costs with those water supplies, an ILI that appropriately takes into account financial considerations would be in the 1.0-3.0 range, which is consistent with GSWC's ILI for Region II.

In addition, by basing its arguments solely on weighted average ILIs across systems, Cal Advocates conveniently fails to address the ILI ratings for the Region III systems listed in Table 1-24 that exceed the 1.0-3.0 range.⁷¹ This table shows that the Barstow and South San Gabriel systems have ILIs of 3.4 and 3.32 respectively, which are

⁶⁵ December 2019 Culver City Master Plan, Figure 2-2 System Schematic.

⁶⁶ December 2019, Florence Graham Master Plan, Figure 2-2 System Schematic.

⁶⁷ December 2019, Hollydale Master Plan, Figure 2-2 System Schematic.

⁶⁸ December 2019, Norwalk Master Plan, Figure 2-2 System Schematic.

⁶⁹ December 2019, Southwest Master Plan, Figure 2-2 System Schematic.

⁷⁰ December 2019, Willowbrook Master Plan, Figure 2-2 System Schematic.

⁷¹ Cal Advocates' Report and Recommendations on Pipeline Replacement at 31.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

significantly higher than the ILIs in Region II and the weighted average ILIs for both Regions II and III (1.18 and 1.87 respectively).

8) Cal Advocates makes flawed recommendations based on the March 2018 Utah State study.

(Q) What would you like to discuss next?

(A) Cal Advocates recommends that “the Commission should adjust GSWC’s requested pipeline replacement projects in Region III so that the average annual pipeline replacement is brought in line with the utility average of 0.8% annually.”⁷² Cal Advocates purports to make this recommendation based on the results of the Utah State University Buried Structures Laboratory’s study previously referenced above, “*Water Main Break Rates in the USA and Canada: A Comprehensive Study*”, March 2018 (again, the “Utah Study”). However, the Utah Study does not support Cal Advocates’ recommendation to reduce pipeline replacement rates to 0.8% per year.

The Utah Study found that “an average of 0.8% of installed pipe is replaced each year,”⁷³ but this figure was merely the result of calculating the average replacement rates of those water purveyors who responded to the survey request made by the authors of the Utah Study.⁷⁴ This figure was *not* determined by a detailed analysis of

⁷² *Id.* at 31.

⁷³ Utah State University Buried Structures Laboratory, *Water Main Break Rates in the USA and Canada: A Comprehensive Study* (March 2018) at 6.

⁷⁴ *Id.* at 8.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 the *need* for replacement; it was merely the numerical average of the existing
2 replacement rate of those water utilities who responded to the survey question in 2018.

3
4 Indeed, the 0.8% figure is of limited value due to the small number of water systems
5 that responded to the survey. According to the Utah Study, there are “52,110
6 community water systems providing year-round water services for residents,”⁷⁵ yet only
7 “281 utilities were able to provide water main break data in the basic survey and 98
8 responded to the detailed survey.”⁷⁶ Thus, the Utah Study is based on a sample
9 population of only 0.54% and 0.19% respectively of all year-round community water
10 systems in the United States. The Utah Study examines the miles of pipe per
11 population served in its analysis⁷⁷ and explains that the percentage of miles of pipe
12 surveyed (170,569 miles out of the 1.2 million miles of pipe installed in the United
13 States) is only 12.9%, which is not even close to a majority of the installed U.S. pipe
14 inventory.

15
16 More troubling is that Cal Advocates selectively chose a particular statistic from the
17 Utah Study that, at first blush, appears to support its argument, but the findings and
18 conclusions of the Utah Study actually demonstrate that Cal Advocates’
19 recommendations should be rejected. For example, the Utah Study found that for those
20 purveyors who responded, the average age of failing mains is 50 years,⁷⁸ which if
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23 ⁷⁵ *Id.* at 7.

24 ⁷⁶ *Id.* at 8.

25 ⁷⁷ *Id.* at 15, Table 3.

26 ⁷⁸ *Id.* at 39.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 applied to GSWC, would suggest that GSWC should replace 2.0% of its main every
2 year, which would be an unreasonably high replacement rate.

3
4 The Utah Study also detailed the break rates of the most commonly installed pipe
5 materials in the United States. The break rate for cast iron pipe is over three times
6 higher than for asbestos cement pipe and 15 times higher than for polyvinyl chloride
7 pipe.⁷⁹ Cal Advocates fails to consider how these break rates could potentially skew the
8 0.8% average replacement rate found in the Utah Study, and thus be inapplicable to
9 GSWC's system, in which the majority of the pipes scheduled for replacement are cast
10 iron pipes.⁸⁰

11
12 In sum, Cal Advocates cherry-picked a single statistic from the Utah Study to support its
13 recommendation but ignored the study's other findings and conclusions. Cal Advocates'
14 quotation of one statistic in a report, without disclosing how that statistic was derived or
15 acknowledging the authors' conclusions, is disingenuous. Indeed, as previously
16 addressed, the authors of the Utah Study concluded that "Pipe replacement rates
17 should be between 1% and 1.6%, equivalent to 100-year and 60-year".⁸¹ As such, Cal
18 Advocates' recommendation that GSWC's pipeline replacement rate be reduced to
19 0.08% is directly contrary to the conclusions set forth in the Utah Study

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22
23 ⁷⁹ *Id.* at 24, Table 5.

24 ⁸⁰ EXCEL file "2020 GRC proposed Pipelines.", attached hereto as **Attachment 3**.

25 ⁸¹ Utah State University Buried Structures Laboratory, "*Water Main Break Rates in the USA and Canada: A*
26 *Comprehensive Study*" (March 2018) at 6.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Does this conclude your Rebuttal Testimony on GSWC's requested pipeline
2 replacement projects?

3 (A) No, I would like to summarize GSWC's rebuttal testimony, to state concisely why the
4 Commission should approve GSWC's proposed pipeline replacement projects in this
5 GRC:

- 6 1) GSWC's age-based KANEW modeling is only one component of its PMP; the risk
7 assessment and pipeline prioritization components of GSWC's PMP appropriately
8 consider pipeline conditions when analyzing and determining pipeline replacement
9 projects.
- 10 2) GSWC did not accelerate the construction of replacement pipelines but rather
11 replaced pipelines in conformance with its Commission-approved PMP guidelines.
- 12 3) When analyzing the cost per foot of the cost of repairs, it is often more cost-effective
13 to replace rather than to repair a pipeline.
- 14 4) GSWC did not over-estimate its pipeline replacement costs, but instead used
15 contemporary data that is a significantly better indicator of future costs than the 13-
16 year old data that Cal Advocates proposes be used.
- 17 5) Cal Advocates' recommendation that GSWC employ EPA's "break-even" analysis
18 dating back to 2002 is contrary to conservation objectives and bad policy in light of
19 the ever-increasing drought conditions resulting from climate change.
- 20 6) The methodology and results of the Mesa Study are inapplicable to GSWC's system,
21 as only 1% of GSWC's pipeline replacement projects would be suitable for the
22 analysis used in the Mesa Study; therefore, the Mesa Study provides no basis for
23 rejecting GSWC's PMP-related requests in this GRC.
- 24 7) GSWC's PMP factors in the costs and benefits to its customers when prioritizing
25 pipeline replacements.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

8) Cal Advocates “cherry-picked” ILI ratings in Region II and III and, as to Region II, failed to consider the expense of importing water from outside Southern California or the impact of groundwater treatment costs in determining an appropriate ILI for GSWC’s systems.

9) Cal Advocates’ analysis of the Utah Study confuses current **reported** historic replacement pipeline rates with **recommended** pipeline replacement rates, and Cal Advocates’ recommendation to reduce GSWC’s pipeline replacement rate to 0.8% is completely contrary to the conclusions in the Utah Study.

(Q) Are there any other items you would like to discuss?

(A) Yes. Cal Advocates confirmed in response to GSWC data request RH-02⁸² that the amounts referenced in Cal Advocates’ report as GSWC’s requested capital budget to complete pipeline projects in Region 3 of \$3,285,800 in 2021, \$17,927,422 in 2022 and \$30,818,123 in 2023⁸³ are misstated. The correct amounts should be \$3,283,100 in 2021, \$17,925,400 in 2022, and \$30,816,100 in 2023.⁸⁴

(Q) Does this conclude your Rebuttal Testimony on GSWC’s requested pipeline replacement projects?

(A) Yes, for the reasons cited above, the Commission should disregard Cal Advocates’ recommendations and approve GSWC’s requested pipeline replacement projects in this GRC.

⁸² GSWC data request RH-02 (pipeline replacement).pdf, attached hereto as **Attachment 4**.

⁸³ Cal Advocates’ Report and Recommendations on Pipeline Replacement at 28:21 and 29:1-2.

⁸⁴ Cal Advocates’ response to GSWC Data Request RH-02 (Pipeline Replacement, Question 1).

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Region 1

Arden System

Arden – New Well Land Acquisition

(Q) Which project you would like to address first?

(A) We would like to discuss Arden – New Well Land Acquisition in the Arden System, Arden Cordova CSA.⁸⁵

(Q) How much did GSWC request for this project?

(A) \$543,900 in 2021.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

(Q) What is Cal Advocates' justification for recommending this project be disallowed?

(A) Cal Advocates state: "The Commission should reject GSWC's request for funding to acquire a new parcel of land to drill a well in 2021. GSWC did not provide enough support to justify its request for additional supply in the Arden system when the current system has enough capacity to meet the system's demand."⁸⁶ Cal Advocates

⁸⁵ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 32.

⁸⁶ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 4:11-15.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

also claim, “GSWC does not need to replace Greenhills Well No. 5 and Morse Well No. 8 as the claims that these wells are anticipated to fail is unsupported.”⁸⁷

(Q) Does GSWC agree with Cal Advocates’ assessment?

(A) No, GSWC does not agree with Cal Advocates’ claim that GSWC does not need to replace Greenhills Well No. 5 and Morse Well No. 8. Cal Advocates’ based their assertion on documents of “routine maintenance over the years” showing “no instances . . . where both wells had to be taken offline for extended periods of time,”⁸⁸ which has nothing to do with the need to replace aging wells before they fail. GSWC needs to replace old wells to maintain supply reliability and redundancy. As stated in the Wood Rogers GSWC ASD Well Field Assessment & Recommendations report⁸⁹, the wells have exceeded even the upper range of their anticipated service lives based upon the respective methods and materials used to construct the wells. Wells drilled with the cable tool drilling method and constructed with steel casing materials, such as Greenhills Well No. 5, have a service life of 30 to 60 years and Greenhills Well No. 5 was already 66 years old when Wood Rodgers performed its assessment in 2017. Wells drilled using the reverse rotary method and constructed with mild steel casing materials, such as Morse Well No. 8, have a service life of 30 to 50 years and Morse Well No. 8 was already 52 years old when Wood Rodgers

⁸⁷ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 5:10-11.

⁸⁸ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 6:8-10.

⁸⁹ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 2 of 10 (Attachments AC01 – AC06), Attachment AC01, *Arden Service District Well Field Assessment & Recommendations* at 9-10.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 performed its assessment in 2017. Indeed, all 5 of the wells in the Arden System
2 are reaching the end of their service lives. The wells are aging, and were not drilled
3 with current technology or lined with the precision and materials available today. As
4 with all water supply wells, Greenhills Well No. 5 and Morse Well No. 8 (and the other
5 three wells in the Arden System that were drilled in the early 1950's) will simply not
6 produce water reliably forever and eventually will experience a failure that either
7 cannot be repaired or the repair of which will entail a cost that exceeds any
8 anticipated benefit. As wells age, and especially when they reach this point in their
9 service lives (in terms of both age and condition), history and industry experience
10 indicate (and experts advise) that the likelihood for sudden failure increases, and it is
11 GSWC's responsibility to construct replacement groundwater wells prior to old wells
12 failing. That is, GSWC should begin developing replacement water supplies in order
13 to provide redundancy that would maintain reliability when these aging wells fail, as
14 they are certain to do eventually. Cal Advocates' recommendation fails to
15 comprehend that waiting for "instances . . . where both wells had to be taken offline
16 for extended periods of time" before commencing the development of alternative
17 supplies would not be prudent management when dealing with wells this far into their
18 anticipated service lives. Failing to replace a well before it completely fails (i.e.
19 collapses, casing fails, there is a significant drop in water production, over sanding or
20 the inability to install a pump) is akin to not replacing the tires on your car until they
21 blow out. Groundwater wells and tires are similar in that you observe the wear and
22 tear and perform maintenance to extend their useful lives; however, it is good
23 practice to replace car tires and groundwater wells before they fail catastrophically.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 GSWC's 'Risk-Based Asset Management Program' states: "As infrastructure across
2 the United States deteriorates and utilities are unable to keep pace with required
3 maintenance and improvements through current user charges, the need increases for
4 a process to make decisions about infrastructure rehabilitation and replacement
5 based on maximizing levels of service while minimizing risk."⁹⁰ That is exactly what
6 GSWC aims to accomplish with this proposed project, which only entails the land
7 acquisition for future replacement wells. To keep its infrastructure up to appropriate
8 standards, and to do so while avoiding rate shock to its customers, GSWC must
9 begin the process of replacing its aging water supply infrastructure in the Arden
10 System, and, for all of the reasons (risks) listed in GSWC's Testimony, Greenhills
11 Well No. 5 and Morse Well No. 8 are ideal candidates for replacement at this time.
12

13 GSWC also does not agree with Cal Advocates' claim that GSWC did not provide
14 enough support to justify its request for additional supply in the Arden system. Cal
15 Advocates state that our Arden water supply analysis⁹¹ "was done without the
16 inclusion of the Trussel well (1,000 gpm), which was approved by the Commission in
17 the last GRC and constructed."⁹² GSWC performed the supply and capacity analysis
18 in 2019 and at that time, the Trussel well was still under construction, which is why it
19 was excluded from our analysis. On the other hand, GSWC did include Greenhills
20 Well No. 5 (600 gpm) and Morse Well No. 8 (600 gpm) in our 2019 water supply and
21

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23 ⁹⁰ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Attachment D
24 (Risk Based Asset Management), at 2.

25 ⁹¹ 2019 Arden System Water Master Plan Section 5.3.4 Table 5-7.

26 ⁹² Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 5:2-3.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

capacity analysis which should be excluded based on Wood Rogers Well Field Assessment & Recommendations report, which concluded that these wells have exceeded their useful lives. With the inclusion of the Trussel Well (1,000 gpm) and the exclusion of Greenhills Well No 5 (600 gpm) and Morse Well No 8 (600 gpm), the system supply and capacity analysis results indicate a 158 gpm supply deficiency for peak hour demand (PHD) and 989 gpm supply deficiency for maximum day demand plus fire flow (MDD+FF) as seen in the table below.

Table 1-1: Arden Supply and Capacity Analysis – Systemwide (Updated)

		Planning Scenario							
		ADD		MDD		PHD		MDD+FF	
Duration (Hours)		24		24		4		2	
Demand		GPM	MG	GPM	MG	GPM	MG	GPM	MG
Main Zone		609	0.877	1,339	1.928	2,008	0.482	3,839	0.461
Total Demand		609	0.877	1,339	1.928	2,008	0.482	3,839	0.461
Supply	Capacity								
Wells	2,850	2,850	4.104	1,850	2.664	1,850	0.444	2,850	0.342
Reservoirs	0.0	-	-	-	-	0	0.000	0	0.000
Total Supply		2,850	4.104	1,850	2.664	1,850	0.444	2,850	0.342
Supply Minus Demand		2,241	3.227	511	0.736	-158	-0.038	-989	-0.119
Supply Meets Demand		YES		YES		NO		NO	

Excluding the Greenhills Well No. 5 and Morse Well No. 8 from the analysis tracks with the 2017 assessment by Wood Rogers, which recommended that “GSWC should plan for the drilling and construction of two new water supply wells, each capable of meeting maximum daily demands. Wood Rodgers suggests constructing

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 the first well as soon as possible.”⁹³ The “first well” referenced in the report is the
2 Trussel well, which GSWC promptly began constructing. Wood Rodgers, after
3 discussing the design it had prepared for the Trussel well, states “GSWC should also
4 plan on constructing an additional well, with a similar design, within the next three
5 years to replace existing wells that are anticipated to fail.”⁹⁴ A second well is still
6 needed because all five of the operating wells, not just Greenhills Well No. 5 and
7 Morse Well No. 8, have reached the end of their expected service lives, and despite
8 Cal Advocates’ failure to recognize the urgency presented by the advanced age of
9 the wells, all five are anticipated to eventually fail. Greenhills Well No. 5 and Morse
10 Well No. 8 are merely the first of the five that GSWC proposes to retire due to the
11 observed small and large holes in the Greenhills Well No. 5 casing and the significant
12 decrease in production at the Morse Well No. 8. As recommended by Wood
13 Rodgers, a second replacement well is warranted, and GSWC is only seeking here to
14 acquire the land for the future construction of the well. As Wood Rogers noted in its
15 assessment of each of the five existing wells, “there is not sufficient room at this
16 location to drill a replacement well and maintain the required DDW regulatory well
17 site control zone.” Therefore, GSWC seeks approval to acquire land as the future
18 site of the necessary new well.

22 ⁹³ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 2 of 10
23 (Attachments AC01 – AC06), Attachment AC01, *Arden Service District Well Field Assessment &*
24 *Recommendations* at 10.

25 ⁹⁴ *Id.*

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Cal Advocates states that “GSWC’s Arden System Water Master Plan also describes
2 the Arden System as currently meeting the requirements for both MDD and PHD
3 scenarios.”⁹⁵ Cal Advocates fails to acknowledge the deficiency noted in GSWC’s
4 ‘water supply versus demand’ analysis presented in its 2019 Arden Master Plan
5 Table 5-7⁹⁶. The analysis concludes a deficiency of 789 gpm under the MDD+FF
6 scenario.

7
8 (Q) Is the Wood Rodgers report prepared by or under the guidance of Professional
9 Geologists and Certified Hydrogeologists registered within, and licensed by, the State
10 of California?

11 (A) Yes, the Wood Rodgers report was authored and sealed by Professional Geologists,
12 Certified Hydrogeologists, and Certified Engineering Geologist.

13
14 (Q) Does Cal Advocates express any other concerns with this project?

15 (A) Yes. Cal Advocates states, “GSWC’s Arden Water System has experienced a
16 significant decrease in demand since 2003; as a result, the annual water production
17 has also decreased.”⁹⁷ Cal Advocates claims that because “GSWC operates its
18 Arden Water System with a lead-lag well system to meet various demands such as
19 peak hour, fire flow, and emergency situations”⁹⁸ and Greenhills Well No. 5 and
20
21

22
23 ⁹⁵ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 5:4-6.

24 ⁹⁶ 2019 Arden Master Plan Final Section 5.3.4 Table 5-7.

25 ⁹⁷ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 6:12-14.

26 ⁹⁸ *Id.* at 7:1-2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Morse Well No. 8 are lag wells, this demonstrates that the Arden Water System has
2 enough supply to meet system demands.

3
4 (Q) Does GSWC agree with Cal Advocates' assessment?

5 (A) No. Cal Advocates states, "Arden Water System has experienced consistent declines
6 in annual production and maximum daily demand, resulting in reduced annual
7 consumption."⁹⁹ There are a number of problems with this assessment, starting with
8 the fact that Cal Advocates reverses the causal connection between these figures: it
9 is declining consumption, most likely driven by conservation efforts, that has resulted
10 in decreased annual production and maximum daily demand. Second, Cal
11 Advocates fails to identify that the existing system and capacity analysis provided in
12 the Master Plan utilizes a ten-year historical annual water production data set. The
13 fact that annual production data shows a "steady decrease" does not mean aging
14 wells should not be replaced. Further, Cal Advocates seems to be implying some
15 kind of trend that could perhaps be expected to continue into the future, but the
16 historical maximum daily demand and annual production data do not show a "steady"
17 decrease, rather there was a decrease between 2013 and 2015, likely due to drought
18 conditions and water conservation efforts – every year since 2015 has experienced
19 higher annual production and maximum daily demand than 2015. The decline has
20 only been "consistent" in that demand levels have not returned to 2013 levels.

21
22 Cal Advocates acknowledges that "Using multiple pumps that run-in sequence—
23 known as running a lead-lag system—is a common way to meet varying pump
24

25
26 ⁹⁹ *Id.* at 6:16-17.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 system demand. Cycling of the lead pump adds reliability in the form of redundancy
2 and increases the lifespan of the system. In a traditional lead-lag system, such as
3 Arden System, the lead pumps (in this case Watt No. 2, Trussel No. 9 and Rushden
4 No. 6) run until the demand on the system is too great for the pump to meet, at which
5 point the lag pump(s) initiates until demand is met.”¹⁰⁰ GSWC agrees that not all
6 pumps run all the time and running a lead-lag system is a common way to meet
7 varying pump system demand.

8
9 Cal Advocates’ assertion that the lead-lag setup “further demonstrates that the Arden
10 Water System has enough capacity to meet system demand with an adequate
11 operating setup”¹⁰¹ is contradictory to their previous acknowledgement that the lag
12 wells begin pumping when demand exceeds the capacity of the lead wells. The use
13 of a lead-lag system does not imply in any way whatsoever that the lag wells are not
14 necessary to meet system demand at all times year-round, especially when five out
15 of six wells (six because of the inclusion of the Trussel well) have exceeded the
16 upper range of their anticipated service lives and are therefore at increased risk of
17 significant and potentially sudden failure. The fact that the Arden System is a lead-
18 lag system has nothing to do with the supply deficiencies identified in the Wood
19 Rogers GSWC ASD Well Field Assessment & Recommendations: that the wells have
20 exceeded their service life and plans need to be commenced for their replacement.

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25 ¹⁰⁰ *Id.* at 7:2-8.

26 ¹⁰¹ *Id.* at 7:10-11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Cal Advocates also do not offer any expert testimony of their own that refutes the expert testimony and recommendations prepared by Wood Rodgers that identifies that Greenhills Well No. 5 and Morse Well No. 8 have reached the end of their useful lives, or provide any argument as to why it would not be prudent to begin plans for replacing wells that have reached the end of their useful lives.

(Q) Does Cal Advocates express any other concerns with this project?

(A) No.

Cordova System

Coloma WTP, Recoat Reservoir No. 3 Exterior

(Q) Is there another project you would like to address?

(A) Yes. Coloma WTP, Recoat Reservoir No. 3 Exterior in the Cordova System, Arden Cordova CSA.¹⁰²

(Q) How much did GSWC request for this project?

(A) \$375,700 in 2023.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

¹⁰² Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 36.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

2 (A) Cal Advocates argues that because "GSWC did not complete the recoating of
3 Reservoir No. 3 which was authorized in a previous General Rate Case,"¹⁰³ it should
4 not be allowed to recover the cost of the recoating again in the current GRC.
5

6 (Q) Does GSWC agree with Cal Advocates' assessment?

7 (A) No. What Cal Advocates fails to understand is that in an ever-changing economic
8 market, construction bids that are submitted can be much higher than what GSWC
9 initially estimated. In this instance, the bids for the Coloma WTP Recoat Project,
10 approved in the last General Rate Case, were significantly higher than anticipated,
11 which limited GSWC's ability to fund all aspects of the project. In addition, during the
12 interior recoat there was a failure in one of the reservoir valves allowing water back
13 into the reservoir, which required additional work so that the interior recoat would
14 cure correctly. The additional work included: 1) Baffle Placement Correction
15 (\$9,000), 2) Water Intrusion Cleanup and Subsequent Re-Blasting and Re-Coating
16 (\$75,000), 3) Additional Work due to High Chloride/Salt Levels Encountered on the
17 Reservoir Floor (\$40,000) for a total of \$124,000.¹⁰⁴ In order to get the reservoir back
18 online for the high demand periods, GSWC elected to remove the exterior recoat
19 from the project to complete the interior recoat since this was the more critical aspect
20 of the project.
21
22
23
24

25 ¹⁰³ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 8:6-7.

26 ¹⁰⁴ Contractor Executed Change Order No 03.pdf, attached hereto as **Attachment 5**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

As described in GSWC's Capital Testimony, the reservoir is a critical component of the Coloma WTP treatment train to achieve disinfection contact time (CT) requirements required by DDW. The fact is, the exterior of the reservoir needs to be recoated as detailed in the 2017 Harper and Associates Seismic/Structural/Safety and Corrosion Inspection report¹⁰⁵ to properly protect GSWC assets and ensure high quality water supply is available to GSWC's customers.

(Q) Does Cal Advocates express any other concerns with this project?

(A) Yes. Cal Advocates states that "staff did not observe any significant rust spots or buildups on the exterior of Reservoir 3 that would warrant an immediate response to recoating."¹⁰⁶

(Q) Does GSWC agree that there is no observable deterioration on the exterior of Reservoir 3 that warrants a response within the period covered by this GRC?

(A) No. As stated by Harper and Associates Engineering, Inc. "Moderate corrosion is present at the center vent and cathodic protection handholes. In addition, the adhesion of the existing paint system appears to be marginal. The Water Company may want to repaint the exterior surfaces when the interior is recoated to repair random corrosion and overcome the chalking and fading appearance. The exterior surfaces should be brushoff blast cleaned (SSPC-SP7) to remove all oxidation and

¹⁰⁵ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 2 of 10 (Attachments AC01 – AC06), Attachment AC04, *Corrosion and Seismic/Structural/Safety Engineering Evaluation Report*.

¹⁰⁶ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 8:23-24.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 all surfaces should be abraded to create a mechanical bond between the existing
2 and new paint systems.”¹⁰⁷

3
4 (Q) When Cal Advocates conducted its field tour, would they have been able to see the
5 coating failure and corrosion noted by Harper and Associates Engineers, Inc.?

6 (A) No, the coating failure and corrosion is, as indicated in the Harper Associates
7 Engineers, Inc. report, on the roof of the tank (i.e. more than 30 feet above ground)
8 and is not visible from ground level. Therefore, it is difficult to understand how Cal
9 Advocates can evaluate the overall condition of the coating system when they could
10 not see the roof, let alone inspect it. A ground level ‘walk-by’ observation of the tank
11 coating system, as conducted by Cal Advocates, is woefully insufficient to form a
12 conclusion on the condition of the exterior tank coating system and should be
13 disregarded by the Commission.

14
15 (Q) Does Cal Advocates express any other concerns with this project?

16 (A) No.

17 18 Coloma WTP, Filter Backwash

19
20 (Q) Is there another project you would like to address?

21
22
23 _____
24 ¹⁰⁷ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 2 of 10
25 (Attachments AC01 – AC06), Attachment AC04, *Corrosion and Seismic/Structural/Safety Engineering Evaluation*
26 *Report* at 9.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Yes. Coloma WTP, Filter Backwash in the Cordova System, Arden Cordova CSA.¹⁰⁸

2
3 (Q) How much did GSWC request for this project?

4 (A) \$570,600 in 2023.

5
6 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

7 (A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

8
9 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

10 (A) Cal Advocates contends that "Coloma Water Treatment Plant Filter Backwash project
11 was previously requested by GSWC and subsequently rejected by the Commission in
12 the final decision for A.17-07-010. Additionally, a Coloma WTP Facilities Alternative
13 Study was requested in A.17-07-010 and the Commission required GSWC to finish
14 the study and use the findings of the study to determine the best option before
15 modifying the existing backwash system,"¹⁰⁹ and because "GSWC did not complete
16 the study and no findings were used to justify the needs for this project in this GRC[,]
17 [i]t is not prudent to proceed with the proposed filter backwash modification before
18 GSWC evaluates other alternatives."¹¹⁰

19
20 (Q) Is Cal Advocates correct that the Commission rejected the Coloma Water Treatment
21 Plant Filter Backwash project in the prior GRC?

22
23 ¹⁰⁸ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 36.

24 ¹⁰⁹ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 9:17-22.

25 ¹¹⁰ *Id.* at 9:23-25.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) No. Cal Advocates fails to acknowledge that the Coloma WTP Treatment Plant Filter Backwash project was withdrawn during settlement negotiations in the 2017 GRC proceeding¹¹¹ and Cal Advocates (formerly the Office of Ratepayer Advocates) did not dispute the project. The Commission adopted the entire settlement agreement between GSWC and Cal Advocates (formerly the Office of Ratepayer Advocates) and did not deny the filter backwash project based upon its merits.

(Q) Did the Commission require GSWC to finish the study and use the findings of the study to determine the best option before modifying the existing backwash system?

(A) No, the Coloma WTP Facilities Alternative Study was neither part of the settlement agreement nor the decision. As stated in GSWC's rebuttal testimony in the previous GRC:

"While GSWC agrees that the . . . Facility Alternatives Study ("Study") will determine the appropriate course of action for implementing facility improvements to improve the surface water treatment process at the Coloma WTP, GSWC does not agree that the Study must be complete[d] before GRC approval of the filter backwash project. The Study will evaluate three options: 1) High-Rate Clarification/Gravity Filtration; 2) Pressure Contact Clarification/Pressure Filtration; and 3) Membrane Filtration, and recommend one of these three options for installation at the Coloma WTP. If – after the Study/pilot testing concludes – Pressure Contact Clarification/Pressure Filtration

¹¹¹ A.17-07-010 Settlement Agreement at 48-49 (beginning with "As part of the settlement, GSWC withdrew or reduced its budget request for the following projects that were not disputed by ORA" and Table 3.5).

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 is the selected alternative, the ten existing filters at the Coloma WTP will remain in
2 service.”¹¹²

3
4 GSWC acknowledged the Alternatives Study as a tool to be used in connection with
5 determining the best long-term option for addressing the backwash filtration in the
6 future. GSWC never agreed that the Alternatives Study was to be a prerequisite to
7 the backwash system modifications requested in this proceeding, which are
8 components of the shorter term solution.

9
10 (Q) Is it imprudent to proceed with the proposed filter backwash modification before
11 evaluating other alternatives?

12 (A) No, it is prudent to implement both long-term plans and shorter-term solutions; this is
13 not unusual. As described in GSWC’s 2017 Capital Testimony, all ten filters are
14 already equipped (that is, plumbed with a flanged stub-out connected to the filter
15 underdrain system) and prepared to be directly connected to system water. Installing
16 piping from the Cordova water system to the filter backwash stub-outs will allow for
17 the use of system water to perform filter backwash in lieu of using filter effluent to
18 backwash each filter. This is preferable because, if solely relying on filter water
19 effluent to backwash filters, the production of drinking water from the Coloma WTP
20 has to essentially come to a halt, as all effluent filter water is directed to meet the
21 backwash need. It is prudent to move forward now with the piping upgrades to allow
22 the use of system water to perform filter backwashes so that the Coloma WTP can
23 continue producing drinking water during filter backwash sequences. Moreover,

24
25
26 ¹¹² Capital Rebuttal Testimony 2017 GRC at 30:10-19.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

undesirable side effects of using filter effluent, as opposed to system water, to backwash a filter are: 1) drinking water production is halted, 2) settled water pumps must be used to backwash filters with filter effluent; which is inefficient, and 3) turbidity spikes may occur when starting and stopping water production if filter effluent is switched from production mode to backwash mode and back to production mode. This project is consistent with WTP best management practices. GSWC has completed modifications, approved in the previous GRCs, so that all ten filters now have system water backwash stub-outs which can be directly connected to a new main with system water. It would not be prudent to continue using filter effluent to backwash the filters for years while waiting for the results of the Study, when the system is prepared to enable the use of system water with just this one additional upgrade.

Cal Advocates' assertion that "no findings were used to justify the needs for this project in this GRC,"¹¹³ is irrelevant. No study is needed to identify the significant benefits of this upgrade, which, regardless of the outcome of the Study, will significantly improve operations well into the future. Cal Advocates' assessment fails to recognize that it is in the best interests of GSWC customers to install new backwash piping to these filters to facilitate their efficient operation and maximize the output of the existing Coloma WTP pending the resolution of the Study. It will take at least a cumulative period of 6 years for the Coloma WTP Facility Alternatives Study to be concluded, without taking into account further delays if the Study recommends another treatment alternative, before GSWC could seek approval to implement the

¹¹³ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 9:23-24.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 alternative approach. The project proposed here would therefore improve the Coloma
2 WTP operations in the interim. The project plan is consistent with the key principles
3 of the Commission's 2010 Water Action Plan, as it would allow GSWC to continue to
4 provide its customers with "[s]afe, high quality water", "[h]ighly reliable water supplies"
5 and "[e]fficient use of water",¹¹⁴ and it would not be prudent to deprive customers of
6 these benefits for years while eventual alternatives are studied.

7
8 Cal Advocates' recommendation to deny the Coloma WTP backwash improvement
9 project is based on Cal Advocates wrongly connecting the Coloma WTP filter
10 backwash improvements and Coloma WTP Facilities Alternatives Study. These two
11 projects are independent of one another; they are separate and distinct projects, that
12 happened to be located at the Coloma WTP. The fact is, improving the existing
13 Coloma WTP filter backwash system is a project that will address an immediate need
14 by supplementing backwash water (filter effluent water) with water from the Cordova
15 Distribution System. Whereas, the Coloma WTP Facilities Alternatives Study is a
16 study that will assess the pros and cons of available water treatment technologies
17 and make a recommendation for a treatment system to replace the existing Coloma
18 WTP sometime in the future. As indicated, the backwash improvement project will
19 provide immediate benefit to ratepayers by increasing the water treatment capacity of
20 the Coloma WTP. Whereas the Facilities Alternative study is a project that will
21 evaluate available water treatment alternatives and make a recommendation on the
22 treatment method GSWC should implement in a future rate case when it is time to
23
24

25
26 ¹¹⁴ CPUC Water Action Plan, October 2010, at 2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 replace the existing Coloma WTP. The backwash improvements requested in this
2 proceeding have no bearing on the future treatment plant or Alternatives Study.

3
4 (Q) Does Cal Advocates express any other concerns with this project?

5 (A) No.

6
7 **South Bridge Plant, Chlorination Facilities**

8
9 (Q) Is there another project you would like to address?

10 (A) Yes. South Bridge Plant, Chlorination Facilities in the Cordova System, Arden
11 Cordova CSA.¹¹⁵

12
13 (Q) How much did GSWC request for this project?

14 (A) \$525,700 in 2023.

15
16 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

17 (A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

18
19 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

20 (A) Cal Advocates argues that "GSWC was previously authorized a project to repair and
21 not replace the existing facilities,"¹¹⁶ and should still proceed with a repair because
22 "the one bid GSWC obtained for the repair still indicates that it is cheaper to repair
23

24
25 ¹¹⁵ Prepared Testimony of Robert Hanford and Mark Insco Operating District Capital Testimony at 40.

26 ¹¹⁶ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 10:12-13.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 the structures rather than to replace them.”¹¹⁷ Furthermore, Cal Advocates claims
2 “GSWC’s failure to acquire more bids from other vendors when its only bid came
3 back higher than anticipated should not become a burden for Arden Cordova’s
4 ratepayers to bear,”¹¹⁸ and suggests that GSWC “seek cost recovery, after project
5 completion, in a future GRC and the Commission can then conduct a prudency
6 review.”¹¹⁹

7
8 (Q) Does GSWC agree with Cal Advocates’ assessment?

9 (A) No. Cal Advocates asserts that GSWC’s “failure to acquire more bids”¹²⁰ is somehow
10 disqualifying, but GSWC invited at least three contractors to provide bids and even
11 extended the bid due dates, with the intent of acquiring more bids. Even with
12 GSWC’s reasonable efforts to acquire more bids, only one was received. GSWC
13 does not control private contractors and should not be penalized for their declining to
14 participate.

15
16 The Wood Rodgers report estimating the cost of repairs includes the disclaimer that
17 their “site survey was limited to visual inspection of the subject buildings. The findings
18 . . . are based upon a cursory physical survey of the buildings and did not involve a
19
20
21

22 ¹¹⁷ *Id.* at 10:3-4.

23 ¹¹⁸ *Id.* at 10:1-4.

24 ¹¹⁹ *Id.* at 10:6-7.

25 ¹²⁰ *Id.*

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

comprehensive engineering survey”.¹²¹ The report also includes a recommendation that “destructive testing” (i.e., coring of masonry and steel support structures) be conducted at an estimated cost of \$3,500 per building, “to verify the material integrity of the masonry walls and wall reinforcement,” and warns that “test[s] results may require additional repairs and costs”. GSWC is not at fault for relying on estimates that were imperfect at the time.

Nonetheless, as recommended by Wood Rodgers, GSWC performed the destructive testing to determine whether the South Bridge Plant Disinfection Residual Facilities are structurally sound. Based on the result of that test, GSWC has concluded that it will be possible to repair the buildings rather than a full replacement. Therefore, GSWC proposes to reduce the requested amount for this project to \$100,000, which we estimate will be sufficient to complete the repairs, based on the previous bid received of \$73,000 plus \$27,000 for our internal costs.

South Bridge Street Plant Wells No. 22A & No. 22B are critical to the Cordova System water supply – each have a design capacity of approximately 3,000 gpm, and are the largest producing water supply wells in the Cordova System – and temporary loss of the capacity of either of these wells due to failure or emergency repairs of the chemical feed systems/structures would be significant. It is crucial that GSWC make the appropriate investment to ensure ongoing and long-term reliable operation of

¹²¹ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 5 of 10 (Attachments AC08 - SM04), Attachment AC09, *South Bridge Wells 22A, 22B and Folsom South Well Structural Assessment Report* at 3.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 these facilities. Accordingly, this project should be approved per the modified scope
2 described above.

3
4 (Q) Does Cal Advocates express any other concerns with this project?

5 (A) No.

6 7 Simi Valley System

8 9 **Fitzgerald Plant, Pump House**

10
11 (Q) Is there another project you would like to address?

12 (A) Yes. Fitzgerald Plant, Pump House in the Simi Valley System, Simi Valley CSA.¹²²

13
14 (Q) How much did GSWC request for this project?

15 (A) \$693,800 in 2021.

16
17 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

18 (A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

19
20 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

21
22
23
24
25
26 ¹²² Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 100.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Cal Advocates argues that because “GSWC could not provide evidence of noise complaints from neighbors”¹²³ and “GSWC recorded no security breaches,”¹²⁴ noise and safety are not real issues, and because “GSWC did not provide any justification of how enclosures can increase the useful life expectancy of pumps,”¹²⁵ housing the pumps inside the enclosure will not be a worthwhile expenditure.

(Q) Does GSWC agree with Cal Advocates’ assessment that noise and security are not issues that require any responsive action?

(A) No, Cal Advocates based their claims on anecdotal information. As described in GSWC’s 2019 Capital Testimony¹²⁶, and as shown in the photos GSWC provided in response to data request ZS1-006¹²⁷, the pumps are located in a residential area and are immediately adjacent to neighboring residences. Further, GSWC seeks amicable relations with the community. Cal Advocates’ suggestion that GSWC should wait until the community is angry before acting to mitigate the disturbance from its infrastructure is not reasonable. Similarly, GSWC’s comment that “GSWC recorded no security breaches” does not justify leaving the pumps exposed in an obviously populated and well-trafficked area. In addition to the security of the pumps, the enclosure would prevent access by children and thereby increase community

¹²³ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 21:11.

¹²⁴ *Id.* at 22:1.

¹²⁵ *Id.* at 21:17-18.

¹²⁶ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 101:8-9.

¹²⁷ Photos included in GSWC response to data request ZS1-006, attached hereto as Attachment 15

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 safety as well. A pump house will provide noise attenuation and improve security of
2 the booster station.

3
4 (Q) Do enclosures increase the useful life of the equipment?

5 (A) Locating a booster station in a pump building provides a climate-controlled
6 environment that reduces environmental wear and tear, which prolongs the useful life
7 of all the booster station equipment and reduces the frequency of maintenance. It
8 also provides additional security to protect these facilities from vandals and thieves.
9 GSWC has had issues with theft of copper conductors/wire from operating plants.

10
11 **Katherine Plant, Pump House**

12
13 (Q) Is there another project you would like to address?

14 (A) Yes. Katherine Plant, Pump House in the Simi Valley System, Simi Valley CSA.¹²⁸

15
16 (Q) How much did GSWC request for this project?

17 (A) \$1,108,000 in 2023.

18
19 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

20 (A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

21
22 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

23
24
25

¹²⁸ *Id.* at 101.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Cal Advocates argues that because “GSWC could not provide evidence of noise complaints from neighbors”¹²⁹ and “GSWC recorded no security breaches,”¹³⁰ noise and safety are not real issues, and because “GSWC did not provide any justification of how enclosures can increase the useful life expectancy of pumps,”¹³¹ housing the pumps inside the enclosure will not be a worthwhile expenditure.

(Q) Does GSWC agree with Cal Advocates’ assessment that noise and security are not issues that require any responsive action?

(A) No, Cal Advocates based their claims on anecdotal information. As described in GSWC’s 2019 Capital Testimony¹³², and as shown in the photos GSWC provided in response to data request ZS1-006¹³³, the pumps are located in a residential area and are immediately adjacent to neighboring residences and an elementary school, and is surrounded by a low chain-link fence. Further, GSWC seeks amicable relations with the community. Cal Advocates’ suggestion that GSWC should wait until the community is angry before acting to mitigate any disturbance from its infrastructure is not reasonable. Similarly, GSWC’s comment that “GSWC recorded no security breaches” is simply not an excuse to leave the pumps exposed in an obviously populated and well-trafficked area. In addition to the security of the pumps, the enclosure would prevent access by children thereby increase community safety as

¹²⁹ Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley) at 22:17.

¹³⁰ *Id.* at 23:5.

¹³¹ *Id.* at 22:21-22.

¹³² Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 102:3-4.

¹³³ Photos included in GSWC response to data request ZS1-006, attached hereto as Attachment 15

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 well. A pump house will provide noise attenuation and improve security of the
2 booster station.

3
4 (Q) Do enclosures increase the useful life of the equipment?

5 (A) Locating a booster station in a pump building provides a climate-controlled
6 environment that reduces environmental wear and tear, which prolongs the useful life
7 of all the booster station equipment and reduces the frequency of maintenance.

8
9 (Q) Does Cal Advocates express any other concerns with this project?

10 (A) No.

11 12 **Blankets - Vehicles**

13
14 (Q) Did Cal Advocates address blanket vehicles replacements in its "Report and
15 Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant
16 Items, and Customer Service"¹³⁴?

17 (A) Yes. Cal Advocates also addressed vehicle replacements in its report on CWIP¹³⁵.

18
19 (Q) Is GSWC's response to vehicle replacements in this rebuttal?

20
21
22
23
24 ¹³⁴ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and
Customer Service

25 ¹³⁵ Report and Recommendations on Construction-Work-In-Progress and Special Request 7, Chapter 3.III.B.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) No. GSWC's rebuttal testimony regarding vehicle replacements for all ratemaking areas, both capital and CWIP projects, is addressed in the Rebuttal Testimony of Elizabeth V. McDonough and Dane Sinagra.¹³⁶

Nipomo System

Casa Real Well No. 1, Well Improvements

(Q) Is there another project you would like to address?

(A) Yes. Casa Real Well No. 1, Well Improvements in the Nipomo System, Santa Maria CSA.¹³⁷

(Q) How much did GSWC request for this project?

(A) \$487,300 in 2021.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

(Q) What is Cal Advocates' reason for recommending this project be disallowed?

(A) Cal Advocates implies some level of deception on the part of GSWC because the 2017 engineering memo from Water Infrastructure and Management Solutions ("WIMS") "states that there is no record of the Casa Real Well #1 being rehabilitated

¹³⁶ Rebuttal Testimony of Elizabeth V. McDonough and Dane T. Sinagra at Section XII.

¹³⁷ *Id.* at 85.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 in the past,”¹³⁸ but GSWC “revealed” in a response to a data request that the well had
2 been cleaned, brushed, and treated in 2018. Cal Advocates concludes that
3 “[b]ecause the well was already cleaned, brushed, and treated in 2018, the well does
4 not require rehabilitation at this time.”¹³⁹ Cal Advocates also asserts that “[t]he
5 Commission should also reject the portion of requested project costs related to
6 replacing the well’s pump, as recent test results establish that the pump is in good
7 working condition.”¹⁴⁰

8
9 (Q) Why is GSWC applying for rehabilitation of the Casa Real Well #1 even though it was
10 cleaned, brushed, and treated in March 2018?

11 (A) The 2018 rehabilitation was limited to a minor mechanical rehabilitation (i.e.
12 physically brushing the well screens and removing accumulated material that collects
13 at the bottom of the well). The purpose of a mechanical rehabilitation is to clear the
14 screen openings and remove the majority of the sediment from the well casing. In
15 other words, the chemical rehabilitation GSWC requests now is not duplicative of the
16 2018 mechanical rehabilitation and is of significantly greater scope.

17
18 (Q) What is the difference between the 2018 rehabilitation and GSWC’s proposed
19 rehabilitation in this GRC?
20
21

22
23 ¹³⁸ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and
24 Customer Service at 24:8-9.

25 ¹³⁹ *Id.* at 24:15-16.

26 ¹⁴⁰ *Id.* at 24:17-19.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) The 2018 rehabilitation only brushed and bailed the sediment out from inside of the
2 well casing. The water used during the rehabilitation was also treated with a
3 disinfectant. Unfortunately, this rehabilitation effort did not prove successful in
4 improving the performance of the well and greater rehabilitation is needed to increase
5 the yield from the well.

6
7 The more extensive rehabilitation GSWC proposes in this GRC, as referenced in the
8 technical memorandum prepared by Water Infrastructure & Management Solutions
9 (WIMS), is a chemical rehabilitation where polymer dispersant (or surfactant) is used
10 for dispersing (i.e. chemically removing) any residual wall cake on the borehole walls.
11 This type of rehabilitation not only cleans the well casing, it also cleans gravel pack
12 and the formation outside the casing. When this type of rehabilitation is performed, it
13 usually improves the performance of the well and increases the yield.

14
15 Groundwater wells are among the most valuable and important assets in the entire
16 water system and are critical for the provision of safe and reliable water service. With
17 no rehabilitation, there is a growing risk of damage to the well that cannot be
18 ameliorated by mere cleaning. As such, it is prudent for GSWC to perform the
19 proposed chemical rehabilitation of the well rather than allowing the well's
20 performance to decline to a point where the only option is to replace the well. It is
21 much more cost effective to conduct rehabilitation now than to replace the well later.

22
23 (Q) Who is Water Infrastructure & Management Solutions, LLC (WIMS) and what is their
24 area of expertise?

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) WIMS is a consultant firm that consults and assists with practical water infrastructure
2 design, construction and maintenance, including well field management and water
3 well rehabilitation. They have over 53 years of water resource experience in well
4 drilling, pump design and maintenance, well rehabilitation, assisting in water
5 treatment design and plant construction for both municipalities and agricultural
6 uses.¹⁴¹

7
8 (Q) Is Cal Advocates correct that recent test results establish that the pump is in good
9 working condition?

10 (A) Cal Advocates correctly states that “[t]he current pump efficiency for the Casa Real
11 Well #1 is an average of approximately 68.6%, which equates to a “good” pump
12 efficiency by Commission standards,”¹⁴² however, the overall plant efficiency (pump
13 and motor) is 64.8%, which is at the low end of “good” pump efficiency by
14 Commission standards and signals that the pump is wearing and will soon fall below
15 operational standards and require replacement. Because the pump will need to be
16 pulled from the well to allow well rehabilitation work to be performed, this is an
17 opportune time to replace the well pump and refurbish the pump motor. Once the
18 well rehabilitation work is complete and the rehabilitated well has been test pumped,
19 GSWC will know the new capacity of the rehabilitated well. With the new well
20 capacity (i.e. safe continuous flow rate and corresponding groundwater pumping level
21 in the well), GSWC will be able to specify a replacement pump and motor to pump

22
23
24 ¹⁴¹ <https://www.linkedin.com/in/bob-ereth-ba8b4188>

25 ¹⁴² Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and
26 Customer Service at 25:2-4.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 water efficiently at the ideal capacity. If the well rehabilitation efforts improve the
2 water production and efficiency of the groundwater well, it would be imprudent for
3 GSWC merely to reinstall a pump and motor that will not take advantage of the
4 increased well capacity resulting from the well rehabilitation efforts.

5
6 (Q) Does Cal Advocates express any other concerns with this project?

7 (A) No.

8
9 **Cypress Ridge System**

10
11 **Systemwide, Replacement Well Land Acquisition and Systemwide, Replacement Well**

12
13 (Q) Is there another project you would like to address?

14 (A) Yes. Systemwide, Replacement Well Land Acquisition and Systemwide,
15 Replacement Well in the Cypress Ridge System, Santa Maria CSA.¹⁴³

16
17 (Q) How much did GSWC request for this project?

18 (A) For the Systemwide, Replacement Well Land Acquisition: \$484,400 in 2021 and
19 Systemwide, Replacement Well: \$1,718,700 in 2023, for a total of \$2,203,100.

20
21 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

22 (A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

23
24
25
26 ¹⁴³ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 88-89.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

2 (A) Cal Advocates argues that "[t]he current Cypress Ridge system has enough source
3 supply to meet system demand,"¹⁴⁴ and "GSWC has not demonstrated that a
4 replacement well is more cost effective than installing nitrate treatment at the current
5 facilities when taking into consideration updated project costs and potential additional
6 costs due to the future well site."¹⁴⁵

7
8 (Q) Does the current Cypress Ridge system have enough source supply to meet system
9 demand?

10 (A) No, because of the rising and spiking nitrate levels shown in the Corona
11 Environmental Consulting & Wood Rogers Cypress Ridge System Water Reliability
12 Study¹⁴⁶, Cypress Ridge Well No. 4 is at an unacceptable risk of being forced offline,
13 which would leave the Cypress Ridge pressure zone deficient under the MDD
14 scenario by 35 gpm absent a replacement well. It is for this reason that GSWC is
15 requesting to replace Cypress Ridge Well No. 4, which, together with Cypress Ridge
16 Well No. 6, are the largest sources of supply within the zone. Cal Advocates
17 misunderstands the structure and design of the Cypress Ridge System when it states
18 "GSWC Cypress Ridge Water Master Plan states that the Cypress Ridge system has
19
20

21 ¹⁴⁴ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and
22 Customer Service at 25:19-20.

23 ¹⁴⁵ *Id.* at 25:15-18.

24 ¹⁴⁶ Prepared Testimony of Robert Hanford and Mark Insco Operating District Capital Testimony, Volume 5 of 10
25 (Attachments AC08 - SM04), Attachment SM03, *GSWC Cypress Ridge System: Water Reliability Study* at 2.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

a total well capacity of 1,140 gallons per minute (gpm).¹⁴⁷ As detailed in the Cypress Ridge Water Master Plan, “[t]he Cypress Ridge System is comprised of two pressure zones, the Main Zone and the Indian Hills Zone. The Main Zone functions as two separate distribution areas – referenced in this Master Pan as the ‘Main Zone’ and the ‘Cypress Ridge Zone’.”¹⁴⁸ The existing Cypress Ridge Zone has total well capacity of 380 gpm with a firm capacity of 255 gpm, while the rest of the Main Zone has total well capacity of 760 gpm with a firm capacity of 490 gpm.¹⁴⁹ The Cypress Ridge Zone is hydraulically isolated from the Main Zone, and as such, the sources of supply for each of these zones are hydraulically separated. That is, water supply from the Main Zone cannot be used in the Cypress Ridge Zone, so if Cypress Well No. 4 is forced offline, the Cypress Ridge Zone will not be able to compensate by drawing from the supplies of the greater system.

(Q) Why can’t GSWC combine Cypress Ridge Zone and the Main Zone?

(A) Due to the elevation differences of the customer connections, GSWC operates the Main Zone and Cypress Ridge Zone at different hydraulic grade lines (“HGL”) to achieve and maintain water pressure. This is accomplished by hydraulically separating the two zones with a “normally-closed” inline gate valve - meaning it is a manually operated valve. The HGL of the Main Zone is 430 feet while the HGL of the Cypress Ridge Zone is 405 feet. There is a 25 feet head differential (~11 psi)

¹⁴⁷ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and Customer Service at 25-26:22-1.

¹⁴⁸ 2019 Cypress Ridge Water Master Plan Final at 2-1.

¹⁴⁹ 2019 Cypress Ridge Water Master Plan Final at 5-7, 5-8, and 5-9.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 between the two zones. If GSWC was to open said “normally-closed” valve, wells
2 within the Main Zone would keep pumping water into the Cypress Ridge Zone in an
3 effort to increase pressure in the Cypress Ridge Zone from 405 to 460 feet HGL.
4 This would defeat the purpose (hydraulic efficiency) of operating two separate
5 hydraulic zones. In the event of an emergency (i.e., a major water supply outage
6 within the Cypress Ridge Zone or the Main Zone), the two zones can be combined
7 and operated manually on a day to day basis. However, this manual operation
8 cannot be sustained for ‘normal’ operations. As recommended by Corona
9 Environmental Consulting and Wood Rogers, constructing a new well will improve
10 reliability and redundancy in the Cypress Ridge Zone.

11
12 (Q) Who is Corona Environmental Consulting and Wood Rogers Inc.? What are their
13 qualifications?

14 (A) Corona Environmental Consulting and Wood Rogers Inc. experience and
15 qualifications can be found in the GSWC: Cypress Ridge System Water Reliability
16 Study Proposal.¹⁵⁰

17
18 (Q) What are the costs associated with addressing the nitrate levels by constructing a
19 new well to replace Cypress Ridge Well No. 4?

20 (A) The total cost is anticipated to be \$2,203,100 with \$484,400 in 2021 to acquire the
21 land for the well site and \$1,718,700 in 2023 to drill and construct the well. Cal
22 Advocates exert some effort accusing GSWC of trying to present the costs of the new
23
24

25
26 ¹⁵⁰ GSWC Cypress Ridge System Water Reliability Study Proposal.pdf, attached hereto as **Attachment 6**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 well without the cost of land acquisition or using outdated costs in its analysis –
2 neither accusations are true.

3
4 (Q) Does this include the “potential costs due to the location of the new well” highlighted
5 by Cal Advocates?

6 (A) It includes all costs that are anticipated after a thorough review by experts. Cal
7 Advocates claims that “[b]ecause the current wells have high nitrate levels, it is likely
8 that treatment is needed when the replacement is placed into service,”¹⁵¹ and
9 therefore “[t]o prevent stranding costs, no funding should be allowed for a well site
10 until the test well results demonstrate favorable water quality,”¹⁵² but these claims fail
11 to appreciate that replacement well designs that include deeper annular seals and
12 selective well screening of the most favorable aquifers have the potential to resolve
13 the majority of water quality concerns within the system. Site specific data will be
14 required to properly design wells as stated in the Cypress Ridge Water Reliability
15 Study¹⁵³. Cal Advocates fails to acknowledge that well site funding is required to
16 obtain a well site, at which point, a test well can be constructed to determine water
17 quality, and thus Cal Advocates appears to be advocating for approval of the land
18 acquisition even though it recommended the disallowance of the entire project.

21
22 ¹⁵¹ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and
23 Customer Service at 26:19-20.

24 ¹⁵² *Id.* at 26-27:17-3.

25 ¹⁵³ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 5 of 10
26 (Attachments AC08 - SM04), Attachment SM03, *GSWC Cypress Ridge System: Water Reliability Study* at 56.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Further, Cal Advocates' position originates in an unrelated series of events that
2 occurred years ago in the Los Osos CSA with the Edna Well, which Cal Advocates
3 ultimately uses as justification for its recommendation that GSWC be left to "choose
4 to build a new well and then seek cost recovery in a future rate case when the new
5 well is built. The Commission can then determine if the new well is necessary,
6 prudent, and used and useful before granting cost recovery. This after the fact
7 review protects ratepayers by ensuring costs included in rates deliver the
8 corresponding benefits."¹⁵⁴

9
10 Edna Well is a completely different project, located in a different system with different
11 project concerns, and has nothing to do with the Cypress Ridge Well Land
12 Acquisition and Well Replacement. By constructing a new well without Commission
13 approval, as Cal Advocates suggests, GSWC would need to transfer funds from
14 another prudent and necessary project approved by the Commission so that it would
15 have the necessary funds to complete this project. This would not be to the
16 ratepayers' benefit and is contrary to the Commission's future test year ratemaking
17 methodology. GSWC is appropriately requesting funding for this project based upon
18 supportable evidence for the project's need consistent with all of the other capital
19 projects requested in this GRC.

20
21 (Q) Is the construction of a replacement well more cost effective than installing nitrate
22 treatment at the current facilities?

23
24
25 ¹⁵⁴ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and
26 Customer Service at 27-28:17-2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Yes. The fact is that many of the Cypress Ridge Wells are nearing the end of their service lives so even if nitrate treatment equipment were installed at the current facilities, it would not extend the useful lives of the wells by much nor the quantity or quality of production. Cal Advocates fails to address that the Cypress Ridge Water Reliability Study indicates the nitrates in the groundwater are rising and spiking and a well replacement should be considered before wellhead treatment for precisely these reasons.¹⁵⁵ Additionally, the Cypress Ridge Water Reliability Study assessed the condition of all the Cypress Ridge wells and determined that several wells should be replaced at this time based on degrading production capacity, reaching the end of the wells' useful service life, poor water quality, and/or declining pumping water levels resulting in operational problems.¹⁵⁶ Cal Advocates also did not acknowledge that as the nitrate levels increase, the treatment operations and maintenance (O&M) costs will also increase. In sum, relying on the installation and subsequent operation of nitrate filtration equipment at the existing wells would just kick the can down the road and ultimately require adding the costs of the new well to those of filtration. Acting now to construct a new well is the more cost-effective option as it saves ratepayers the cost and trouble of years of implementing a substandard solution and achieving substandard water quality and production results.

(Q) Does Cal Advocates express any other concerns with this project?

(A) No.

¹⁵⁵ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 5 of 10 (Attachments AC08 - SM04), Attachment SM03, *GSWC Cypress Ridge System: Water Reliability Study* at 66.

¹⁵⁶ *Id.* at 26.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Cypress Ridge Plant, Replace Reservoir No. 2

(Q) Is there another project you would like to address?

(A) Yes. Cypress Ridge Plant, Replace Reservoir No. 2 in the Cypress Ridge System, Santa Maria CSA.¹⁵⁷

(Q) How much did GSWC request for this project?

(A) For the Design: \$63,600 in 2021 and for the Construction: \$433,500 in 2023, for a total of \$497,100.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow this project entirely.

(Q) What is Cal Advocates' reason for recommending this project be disallowed?

(A) Cal Advocates calculates needed and available storage volumes for the Cypress Ridge pressure zone as follows: "The Cypress Ridge Reservoir #2 has a storage volume of 0.275 million gallons (MG). The total storage volume in the current Cypress Ridge pressure zone is approximately 0.55 MG. The Cypress Ridge pressure zone would have a storage capacity of 0.275 MG if the storage capacity from Cypress Ridge Reservoir #2 was excluded (0.55 MG – 0.275 MG = 0.275 MG). GSWC states that the current storage requirement is approximately 0.182 MG for the Cypress Ridge pressure zone, which provides surplus storage of 0.093 MG (0.275

¹⁵⁷ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 86.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

MG – 0.182 MG).”¹⁵⁸ Cal Advocates concludes that “[e]ven without the storage volume from Cypress Ridge Reservoir #2, there is adequate storage to meet the storage demand in the Cypress Ridge pressure zone.”¹⁵⁹

(Q) Does GSWC disagree with Cal Advocates’ calculations?

(A) No. Cal Advocates correctly reflects the calculations surrounding the amounts of needed and available storage.

(Q) Then why does GSWC need to replace Reservoir No. 2?

(A) Because Cal Advocates’ conclusion is nonetheless incorrect. While Cal Advocates’ conclusion that “[e]ven without the storage volume from Cypress Ridge Reservoir #2, there is adequate storage to meet the storage demand in the Cypress Ridge pressure zone,” is mathematically true, it fails to account for the benefits of two reservoirs at a plant site, and by the same token, the risks of only one. A dual reservoir plant site offers operational benefits to the Cypress Ridge System. This plant site is a critical supply facility in the Cypress Ridge Zone. All five wells in the Main Zone rely on the two reservoirs for reliable water supply. The dual reservoirs offer operational flexibility, in the event that GSWC needs to take one reservoir offline for inspections or repairs, GSWC will have the second reservoir to rely on and will not need to spend money on a costly temporary tank. If a problem occurs in one tank that unexpectedly removes it from service, the other can maintain reliability in its absence.

¹⁵⁸ Report and Recommendations on Region 1 Plant (Los Osos and Santa Maria), Blanket Plant Items, and Customer Service at 28:6-12.

¹⁵⁹ *Id.* at 28:13-15.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Without such a back-up, the system will always be on the edge of a reliability
2 emergency.

3
4 Typically, tanks located next to each other operate in parallel so that they both fill and
5 empty at the same time and rate. Having two reservoirs with the same high water
6 level will allow GSWC operators to use both tanks to make the operations of the
7 system more efficient, reduce the chances of loss of fire and emergency storage,
8 reduce the cost for repair and maintenance, and replace Cypress Ridge Reservoir
9 No. 2, an old deteriorating bolted steel structure that could fail due to its condition.
10 GSWC does not agree with Cal Advocates' implication that a single-tank plant site is
11 a more prudent alternative. The Cypress Ridge Reservoir No. 2 should be replaced
12 with a new bolted tank as recommended in the Harper & Associates Engineering, Inc.
13 Corrosion Report (South Tank)¹⁶⁰. As estimated by Harper & Associates Engineering,
14 Inc., the cost to rehabilitate Cypress Ridge Reservoir No. 2 is 81.6% the cost of a
15 new tank. Therefore, as set forth in the Harper & Associates, Inc. Corrosion Report,
16 it is clearly more cost-effective to replace Cypress Ridge Reservoir No. 2 rather than
17 rehabilitation.

18
19
20
21
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23
24 ¹⁶⁰ Prepared Testimony of Robert Hanford and Mark Insco Operating District Capital Testimony, Volume 6 of 10
25 (Attachments SM05 - CBE04), Attachment SM05, *Corrosion and Seismic/Structural/Safety Engineering*
26 *Evaluation Report* at 5.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Region 2

Artesia System

Elaine Plant – New Tank and Booster Station

(Q) Is there another project you would like to address?

(A) Yes. Elaine Plant – New Tank and Booster Station in the Artesia System, Central Basin East CSA.¹⁶¹

(Q) How much did GSWC request for this project?

(A) \$3,835,500 in 2022.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request for the Elaine Plant – New Tank and Booster Station project in the Artesia System?

(A) Yes, Cal Advocates states "The Commission should deny GSWC's request for this project for the following reasons:

- Additional storage capacity is not needed.
- Booster station is not needed.
- Additional equipment and site improvements are not needed."¹⁶²

¹⁶¹ Hanford and Insko Operating District Capital Testimony, page 121

¹⁶² Report and Recommendations on Region 2 Plant and Safety Issues, page 2, lines 14 - 18

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Does GSWC take exception to Cal Advocates' recommendation and their justifications
2 they provided to support their position?

3 (A) Yes, each reason presented by Cal Advocates is factually wrong and the basis on which
4 they formulated their conclusion is flawed and should be rejected by the Commission.
5

6 (Q) What is Cal Advocates' flawed position regarding storage requirements?

7 (A) Cal Advocates makes two claims in regard to water storage. Cal Advocates states:

8 1) "There is no regulation that requires emergency storage for the system."¹⁶³

9 2) "There is no requirement for a system to be able to meet MDD plus Fire Flow
10 (MDD+FF) and as such GSWC is incorrect in its assessment of the zone as deficient
11 as shown in Table 5-7 in the Artesia Master Plan..."¹⁶⁴
12

13 (Q) Please walk us through the steps you will take to respond to Cal Advocates' two claims
14 noted in the preceding answer?

15 (A) GSWC will follow the approach outlined below in our response:

- 16 • We will start off with explaining what 'emergency storage' is.
 - 17 ○ To assist, we will utilize excerpts from a technical memorandum prepared for
 - 18 our Claremont Water System to allow us to provide a comprehensive
 - 19 explanation of emergency storage and its purpose.
 - 20 ○ We will then touch on the experience and qualifications of the water
 - 21 resources engineering firm that authored the technical memorandum.
- 22
23
24

25 ¹⁶³ Report and Recommendations on Region 2 Plant and Safety Issues, page 2, line 24

26 ¹⁶⁴ Report and Recommendations on Region 2 Plant and Safety Issues, page 3, lines 12 - 14

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

- Next we will discuss regulatory support for providing emergency storage and how emergency storage is a common practice in California drinking water systems.
- We then touch on GSWC's criteria for determining the quantity of emergency storage to provide in a water system.
- Next, we explain why emergency storage is critical to reliable water operations and how it benefits our customers.
- We then describe 'system depressurization' - a worst case scenario that occurs if we have a major disruption in water supply or a major waterline breaks and we do not have sufficient 'emergency storage' available to keep the system pressurized until our operators can intervene to resolve the water supply outage or isolate the waterline break.
- Lastly, we discuss the regulatory compliance implications of a water system depressurizing.

(Q) What is emergency storage?

(A) According to a Technical Memorandum for the Claremont Water System prepared by ALDA Inc. in 2014 "Emergency storage is a dedicated volume of water that can be used as a backup supply in the event of a planned or un-planned emergency."¹⁶⁵

(Q) Who is ALDA Inc. and what is their area of expertise?

(A) ALDA Inc. (a.k.a. ALDA Engineering, Inc.) is a Water Resources Engineering Firm specializing in quantifying water system demands, establishing water supply needs,

¹⁶⁵ ALDA Inc. Technical Memorandum Claremont Water System, April 23, 2014, page 22, attached hereto as Attachment 16

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 evaluating capacities of water distribution systems to comply with regulatory and
2 industry established water demand scenarios. Their services include hydraulic
3 modeling of water systems to evaluate water pressures, quantity of flow, and pipeline
4 velocities throughout the system. Their evaluations also include an integrated
5 evaluation of water systems by quantifying water system demands through the
6 development of diurnal curves (i.e. hourly demand over 24-hour period) for average day
7 demand, maximum day demand, peak hour demand, and maximum day demand plus
8 fire flow scenarios. Once the diurnal curves are established, ALDA Inc. creates
9 hydraulic models of water systems. The hydraulic models include: water supply
10 (locations of wells and purchased water connections, including quantity, delivery
11 pressure, and elevation), pipeline network (diameter, geographical locations, and
12 elevation), booster pumps (location, capacity, discharge pressure, and elevation),
13 storage tanks (locations, volumes, and elevations) and the locations and elevations of
14 customers. The models allow ALDA Inc. to identify areas of deficiency and develop
15 alternate solutions to mitigate the deficiencies.

16
17 (Q) What are ALDA Inc.'s qualifications?

18 (A) ALDA Inc. was founded in 2006 with Hannibal Bandon as the Principal Engineer. Mr.
19 Bandon has a Master of Science in Civil Engineering with an emphasis in Water
20 Resources. ALDA Inc. is located in Southern California and they have prepared dozens
21 of water system master plans for public water agencies and private water companies
22 throughout Southern California. They have prepared many more technical
23 memorandums to assess the performance of water systems and develop
24 recommendations to improve water service, increase system reliability, and enhance
25
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

operational efficiencies. Mr. Blandon also serves as an expert witness in legal proceedings.

(Q) Do you agree with Cal Advocates' position that if there is no regulation requiring emergency storage then GSWC should not provide emergency storage for its ratepayers?

(A) Absolutely not. Although the Public Utilities Commission (CPUC or Commission) and Division of Drinking Water (DDW) currently provide no specific requirements for storage volume, GSWC utilizes recommended standards published by the American Water Works Association (AWWA) in the development of the storage criteria in its Water Master Plans.¹⁶⁶ While Cal Advocates may be technically correct in stating "There is no regulation that requires emergency storage for the system."¹⁶⁷, Cal Advocates are using this extreme position to undermine the intent of the key principles of the Commission's 2010 Water Action Plan, specifically to maintain "(h)ighly reliable water supplies."¹⁶⁸ Emergency storage can be an essential element of maintaining highly reliable water supplies, and is necessary in the Artesia System.

(Q) Is emergency storage supported by CPUC's General Order (GO) 103-A and Metropolitan Water District Administrative Code?

(A) Yes, General Order 103-A indirectly supports emergency storage by stating "The purpose of these rules is to establish minimum standards to be followed in the design,

¹⁶⁶ Artesia Master Plan GSWC 2019 Artesia Water Master Plan, Section 5.2.1

¹⁶⁷ Report and Recommendations on Region 2 Plant and Safety Issues, page 2, line 24

¹⁶⁸ CPUC Water Action Plan, October 2010, page 2

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 construction, location, maintenance and operation of facilities of water and wastewater
2 utilities operating under the jurisdiction of the Commission.”¹⁶⁹ Minimum standards are
3 just that, ‘minimum standards’ and do not preclude a water utility from providing
4 emergency storage to afford ratepayers reliable and resilient water services during an
5 unplanned emergency event such as power outages, mechanical failure of a
6 groundwater well, contamination of source water supplies, unplanned outage of major
7 wholesale water provider, earthquake, wild fire, major main break, and outages due to
8 malevolent acts.

9
10 Minimum storage capacity requirements based on the Metropolitan Water District
11 Administration Code states, “Each member agency shall have sufficient resources such
12 as local reservoir storage, groundwater production capacity, system interconnections or
13 alternate supply sources to sustain a seven-day interruption in Metropolitan deliveries
14 based on annual average demands.”¹⁷⁰

15
16 (Q) Is emergency storage, as defined above, a common practice for water utilities and water
17 agencies within California?

18 (A) Yes, within the referenced Technical Memorandum for Claremont Water System, the
19 engineering consultant states “To develop a criterion for the revised approach [for the
20 volume of emergency water storage], water master plans for over 20 small and large
21 municipalities were received and in some cases contacts were made to better
22

23
24 ¹⁶⁹ CPUC GO 103-A, §I.1.A, page 1

25 ¹⁷⁰ Metropolitan Water District Administrative code, 4503(b)

26 http://www.mwdh2o.com/Who%20We%20Are%20%20Fact%20Sheets/1.2_adminCode.pdf

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 understand the criteria used by the various agencies when sizing the emergency
2 component of storage. Some of the WMP [water master plans] reviewed included
3 documents for the City of Ontario (2012), City of Carlsbad (2012), Las Virgenes MWD
4 (2007), City of Big Bear Lake Department of Water and Power (2006), and the City of
5 Tracy (2012) amongst others. From all the WMP reviewed, emergency storage ranged
6 from 25 percent to 150 percent of MDD with most utilities in the 50 percent to 75
7 percent of MDD.”¹⁷¹

8
9 (Q) Does the California Waterworks Standards discuss emergency storage being a
10 component of water storage tanks?

11 (A) Yes, the California Waterworks Standards defines a reservoir as “... a reservoir, directly
12 connected with the distribution system of the domestic water supply project, used
13 primarily to care for fluctuations in demand which occur over short periods of from
14 several hours to several days, or as local storage in case of emergency such as a break
15 in a main supply line or failure of pumping plant.” ¹⁷²

16
17 (Q) How much emergency storage does the California Waterworks Standards require?

18 (A) The Waterworks Standard is silent on the quantity of emergency storage, however, the
19 Waterworks Standards does specifically indicate in the definition of a water storage tank
20 that it provides “... local storage in case of emergency...”. This is in line with industry
21
22
23

24 ¹⁷¹ ALDA Inc. Technical Memorandum *Claremont Water System*, April 23, 2014 at 22, attached hereto as
25 Attachment 16

26 ¹⁷² California Waterworks Standard §7625. Definitions (b).
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

practices and supports GSWC's and the CPUC's position on providing reliable and resilient water supply to its customers at all times.

(Q) What criteria does GSWC use to determine the volume of emergency storage?

(A) As stated in GSWC's Artesia System Master Plan, "Industry standards for emergency storage is between 12 and 24 hours of ADD volume. GSWC used 12 hours of ADD storage for systems with a variety of supply sources and 24 hours of ADD storage for systems with limited supply sources. Because the Artesia System is supplied by a variety of sources, GSWC assumed that 12 hours of ADD volume for the system is appropriate."¹⁷³

(Q) Is GSWC's criteria for the volume of emergency storage in line with the volume of emergency storage within the ALDA Inc. Technical Memorandum for the Claremont System?

(A) Yes, and it should be noted that GSWC's criteria is at the lower end of the range provided in the ALDA Inc. Technical Memorandum which states, "From all the WMP review, emergency storage volume ranged from 25 percent to 150 percent of MDD"¹⁷⁴. For the Artesia System, GSWC utilizes 12-hours of ADD (12-hours x 3,440 gpm = 2.47 MG) as the criteria for emergency storage. This volume is equivalent to 32 percent of MDD, which is at the low end of the emergency storage range noted in the ALDA Inc. Technical Memorandum (12-hours of ADD ÷ 24-hours of MDD = 32%; ∴ 12-hours of ADD = 32% of MDD).

¹⁷³ Artesia Master Plan, Section 5.2.2.3

¹⁷⁴ ALDA Inc. Technical Memorandum Claremont Water System, April 23, 2014 at 22.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Why is it important to have emergency storage and how does emergency storage (i.e. storage volume equal to 12-hours of ADD) benefit the ratepayers?

(A) Emergency storage provides water supply in the event of a major water system outage. A major system outage could stem from the result of a MWD outage due to a failure of MWD feeder line, MWD treatment plant failure, contamination of MWD water supply, or a malevolent act against MWD. Other major outages could result from a regional power outage, an earthquake, wildfire, flooding/landslide, civil unrest, or failure of major water assets. With emergency storage, GSWC will be able to maintain provide water supply to our customers for up to 12-hours without any source water entering the system. The 12-hour cushion will provide GSWC time to begin contacting large water users and request they curtail water usage, issue a request to customers to curtail all non-essential water usage, contact emergency representatives of MWD and SCE to obtain a timeframe for MWD to resolve water supply outage and timeframe from SCE to re-energize the power grid. If warranted, GSWC would contact neighboring water providers and begin making arrangements to obtain water through mutual aid emergency interconnections (assuming neighboring water systems still have water). 12-hours of emergency water supply is crucial for providing GSWC with time to mitigate the outage prior to allowing the water system to depressurize.

(Q) What is system depressurization and why should it be avoided?

(A) Positive pressure within a drinking water system prevents non-potable and contaminants from entering the drinking water system. That is, when the water pressure in the water pipes is greater than 5-pounds-per-square-inch (5-psi), the water pressure itself prevents non-potable water and contaminated water from entering the

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 water pipes through cracks and pin hole leaks in pipes and from leaky pipe joints. The
2 positive pressure (> 5-psi) in the distribution system also prevents back syphoning non-
3 potable water or contaminated water from customer's homes and businesses and as
4 well as preventing back syphoning from industrial customers, irrigation systems, and fire
5 suppression systems. Once a water system depressurizes or reaches a pressure less
6 than 5-psi, DDW may require the system operator (i.e. GSWC) immediately issue a 'Boil
7 Water Notice'¹⁷⁵ informing our customers not to consume water without boiling it to kill
8 any pathogens that may have entered the drinking water system. A Boil Water Notice
9 event is very serious and should be avoided at all costs. Many water systems
10 throughout the state of Texas recently issued Boil Water Notices as the result of power
11 outages and water equipment failures due to the unprecedented cold weather last
12 winter. Following a Boil Water Notice and once water supply is again available, the
13 system operator must re-pressurize the water system in a systematic manner and flush
14 all pipelines with chlorinated water to ensure air and foreign matter is cleared from the
15 water systems and any remaining bacteria or pathogens are deactivated. During the re-
16 pressurization of a water system, customers are still advised not to consume the water
17 without boiling it and water for fighting fires will likely not be available. The time
18 required to re-pressurize a water system will vary depending upon the size of the water
19 system that was depressurized and the number hydraulic zones affected.

20
21 (Q) Do current regulations allow water systems to depressurize?

22 (A) No, California Waterworks Standards and CPUC's GO 103-A require water systems
23 maintain a minimum pressure of 20-psi at all times.
24

25
26 ¹⁷⁵ SWRCB DDW, **Unsafe Water Notification Guidance**, April 2020 at 3.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) What happens if the water system depressurizes?

(A) If a water system depressurizes, the system operator will be in violation of California Waterworks Standards “Each distribution system shall be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution **system is not less than 20 pounds per square inch at all time.**”¹⁷⁶ and the CPUC’s GO 103-A regulations “Each potable water distribution system shall be operated in a manner to assure that the minimum operating pressure at each service connection throughout the distribution system is not less than 40 psi nor more than 125 psi, except that during periods near PHD **the pressure may not be less than 30 psi...**”¹⁷⁷ Following our notifying DDW and CPUC, GSWC would develop a plan to re-fill the water system, evacuate air from the pipelines, chlorinate the pipelines, flush the system, pull bacteriological samples, and upon receipt of negative bacteriological sample results, we would inform customers they could once again consume the water. Depending on the number of customers affected by a depressurization, it would likely take a minimum of several days to more than a couple of weeks to reinstate the water system. As you can see, this would be a very serious event that would disrupt the health (i.e. no water for drinking, flushing toilets, or showering) and safety (i.e. firefighting) of our customers.

(Q) How does Cal Advocates recommend that GSWC comply with the guidelines discussed above regarding emergency storage?

¹⁷⁶ California Waterworks Standards, Chapter 16, Article 8, §64602(a).

¹⁷⁷ GO 103-A, VII.6.A.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Cal Advocates recommends that in lieu of the water storage component for emergencies, GSWC could utilize mutual aid interconnections or emergency interconnections with adjacent water agencies. Cal Advocates states “GSWC did not take into consideration that there are two emergency connections in the North Side of the system: emergency connections with City of Cerritos at Artesia and Elaine, and at South and Airline [Arline] that GSWC could draw from, further enhancing the North Side of the Artesia system’s supply in an emergency situation.”¹⁷⁸

(Q) Does GSWC agree with Cal Advocates’ position that emergency storage is not warranted in water storage tanks because GSWC could utilize water from emergency interconnections to provide supply during an emergency?

(A) No, GSWC does not agree with Cal Advocates’ position for multiple reasons. First, if there is a regional emergency that impacts water supply, it is likely the neighboring water agency will be impacted by the same emergency and will not have water available to deliver to GSWC. Second, emergency interconnections are not ‘bona fide’ water sources as they do not provide water supply on an ‘on demand’ basis. That is, if GSWC does not have ‘emergency water storage’ within its water tanks and its system experiences a local emergency which results in available water supply to not be sufficient to meet current demands, the water system will lose pressure and may depressurize until the emergency interconnection can be placed into service. Third, the process for GSWC to obtain water supply from an emergency water connection is too time consuming and allows for a greater risk of not being able to provide reliable water service to impacted customers. For instance, GSWC would have to become aware of

¹⁷⁸ Report and Recommendations on Region 2 Plant and Safety Issues at 4:22 – 24 and at 5:1-2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 an emergency, such as a large source of supply that fails, resulting in system demand
2 exceeding available supply. Storage tanks would be drawn down, eventually leading to
3 a drop in system pressure. This would be the trigger that the water system is about to
4 lose pressure and may depressurize altogether. GSWC would have to assess the
5 situation and attempt to get the lost source of supply back into operation. This would
6 likely take between two and four hours. Once a determination is made that the supply
7 outage will not be able to be mitigated in short order, GSWC would reach out to the
8 neighboring water provider, in this case City of Cerritos. Once GSWC makes contact
9 with the City of Cerritos City Manager or City Engineer, the City of Cerritos would have
10 to perform an evaluation of their current operational conditions and assess whether they
11 have excess water supply that they could spare and send to GSWC. This process
12 could take somewhere from two to four hours. If they conclude they do not have excess
13 water, GSWC would go without excess water supply and the system totally
14 depressurizes. If they conclude they have excess water, they arrange with GSWC to
15 have water distribution operators meet at the emergency interconnection and discuss
16 how to open the emergency interconnection and how to operate it so it will not overtax
17 the City of Cerritos system. This would likely take another two to four hours to
18 complete. The total duration for obtaining water from an emergency interconnection
19 would likely range from 8 to 16 hours. This response time would likely not allow GSWC
20 to keep the water system from depressurizing and a boil water notice would have to be
21 issued. Conversely, if GSWC has 12 hours of ADD available in its water storage tanks,
22 it would have a much better chance at maintaining system pressure while mitigating the
23 emergency or working on obtaining emergency water supply from the City of Cerritos.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Please summarize your conclusion regarding the prudence for providing emergency
2 storage.

3 (A) The criteria utilized by GSWC in its Water System Master Plan is based on established
4 industry standards for the water industry, is in the best interest of the ratepayers to
5 provide reliable water service, and supports the objectives of the Commission's Water
6 Action Plan. GSWC stands by its analyses and findings presented in the Artesia
7 System Master Plan and encourages the Commission to approve the addition of
8 storage to mitigate the emergency storage deficiency of 0.59 MG in the north side of the
9 Artesia system.¹⁷⁹

10
11 (Q) Is there another component of storage that Cal Advocates recommends the
12 Commission deny?

13 (A) Yes, Cal Advocates makes an outlandish claim that "There is no requirement for a
14 system to be able to meet MDD plus Fire Flow (MDD+FF) and as such GSWC in
15 incorrect in its assessment of the zone as deficient as shown in Table 5.7 in the Artesia
16 Mater Plan (Table 1.2 above [Region 2 Plant- Brian Yu])¹⁸⁰."

17
18 (Q) On what does Cal Advocates base its claim?

19 (A) Cal Advocates misrepresents the facts and makes a claim that water supply alone in the
20 North Side of the Artesia system can meet each demand scenario. Specifically, Cal
21 Advocates claims, "Cal Advocates' analysis for the North Side of the Artesia System in
22 presented in Table 1-2 below [Table 1.2 from Region 2 Plant- Brian Yu testimony
23

24 ¹⁷⁹ Artesia Master Plan, Table 5-11 and Section 5.3.6.

25 ¹⁸⁰ Report and Recommendations on Region 2 Plant and Safety Issues at 3:12 – 14.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

inserted below]. As the results show, GSWC has excess capacity under each planning scenario. The North Side of the Artesia System has a surplus of 4,021 gpm under MDD, 2,049 gpm under PHD, and 966 gpm under FF.”¹⁸¹

Table 1-3: Artesia North Side Supply meets all Demands

	Planning Scenarios			
	ADD	MDD	PHD	FF
Duration (Hours)	24	24	4	4
North Side Demand (in gpm)	1,248	1,945	2,917	4,000
Supply Capacity (in gpm)	4,966	4,966	4,966	4,966
Supply Minus Demand (in gpm)	3,718	3,021	2,049	966
Supply Meets Demand	Yes	Yes	Yes	Yes

182

(Q) Please point out the flaws in Cal Advocates’ analysis and the conclusion based on its analysis.

(A) Cal Advocates ignores the MDD + FF planning scenario altogether and only looks at scenarios that supports its position. In particular, Cal Advocates analysis limits its analysis to single events (ADD, MDD, PHD, and FF) versus available water supply to the North Side of the Artesia System. That is, Cal Advocates compares and concludes the available supply of 4,966 gpm is greater than each individual demand scenario: ADD = 1,248 gpm, MDD = 1,945 gpm, PHD = 2,917 gpm, and FF = 4,000 gpm. The critical error in Cal Advocates’ analysis is they choose to neglect or consider the most stringent and demanding scenario which is a fire flow event occurring during a maximum day demand event (MDD+FF). In fact, Cal Advocates ignores the other more

¹⁸¹ *Id.* at 4:19 – 22.

¹⁸² *Id.* at 5: 3 – 4.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 stringent demand scenario as well (ADD+FF). In each of these cases, GSWC would
2 not have sufficient supplies to meet demand.

3
4 (Q) Can you explain the difference between water supply and water storage and how water
5 supply and water storage are utilized to meet the various demand scenarios in a water
6 system?

7 (A) Yes, water supply, or source capacity, is potable water that is reliably available to a
8 water system at all times during normal operations and is available upon demand. The
9 California Waterworks Standards defines source capacity as "... the total amount of
10 water supply available, expressed as a flow, from all active sources permitted for use by
11 the water system, including approved surface water, groundwater, and purchased
12 water."¹⁸³ Water storage is potable water that is received from water supply sources and
13 stored in water tanks. When water supply exceeds water demands, typically occurs
14 from 10:00 PM through 6:00 AM the following day, the excess water is stored in the
15 water tanks to make it available for periods of time when water demand exceeds water
16 supply. The common scenarios for when this occurs is during peak hour demand
17 (PHD) (i.e. demands exceeding MDD typically occurs 6:00 AM to 9:00 AM and again
18 from 4:00 PM to 7:00 PM each day during peak demand season) and fire flow (FF)
19 demand (fire flow demand (flow and duration) is established by local fire jurisdiction).

20
21 (Q) Why is storage used to meet PHD and FF rather than utilizing water supply or source
22 capacity?

23
24
25
26 ¹⁸³ California Waterworks Standards, §64551.40, Source Capacity.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Water systems must have a water supply that is capable of meeting ADD and MDD at
2 all times. This is a requirement because during peak season, typically summer in
3 California, we commonly have periods of MDD events over several consecutive days.
4 For this reason, water supply must be greater than the MDD event and water stored in
5 water tanks is reserved for PHD and FF events. In short, water stored in water tanks is
6 not a source of supply because it is not new water entering the water system, it is water
7 that previously entered the water system and is only available to meet demands greater
8 than MDD (i.e. PHD and FF).

9
10 (Q) Why do you not add more water supply to the system so the total available water supply
11 could accommodate PHD and FF?

12 (A) It is cost prohibitive to construct additional groundwater wells or construct additional
13 purchase water connections to meet demand scenarios that are typically limited to a
14 duration of four hours. It is more cost effective to have reliable water supply available to
15 meet MDD demands and utilize water stored in tanks to meet PHD and FF events that
16 occur during MDD.

17
18 (Q) Please explain why you include FF demand during MDD.

19 (A) Because it is a regulatory requirement of GO 103-A and local Fire Jurisdictions.
20 Specifically, GO 103-A states "If a system provides potable water for fire protection
21 service, new portions of the system shall have supply and storage facilities that are
22 designed to meet MDD plus the required fire flow at the time of design."¹⁸⁴ Local fire
23 jurisdictions within California, where a water system provides potable water for fire
24 protection, require the water system be capable of providing fire flow during a maximum

25
26 ¹⁸⁴ CPUC GO 103-A, §II.2.B.3.b

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

day demand event. As an example of what is common throughout California, the County of Los Angeles Fire Department utilizes a ‘form letter’ when designating the fire flow requirement for a new structure or facility. The County of Los Angeles Fire Department’s form entitled “Water System Requirements – Unincorporated” states:

“The required fire flow for public fire hydrants at this location is ____ gallons per minute at 20 psi for a duration of ____ hours, over and above the maximum daily domestic demand.”¹⁸⁵

(Q) Does AWWA also support the standard that FF be provided in addition to MDD?

(A) Yes, AWWA states “Design flow should be based on the maximum hourly demand or the maximum daily demand plus the fire flow requirement, whichever is greater.”¹⁸⁶

(Q) Is Cal Advocates’ assertion that there is no requirement for a water system to meet FF demands during a MDD event correct?

(A) No. Cal Advocates’ position that there is no requirement for FF to be provided during a MDD event is absolutely incorrect.

(Q) Based on the above questions and answers, are the water demand scenarios and water supply needs presented in the Artesia Water System Master Plan, including the need to

¹⁸⁵ County of Los Angeles Fire Department, Fire Prevention Division, *Water System Requirements – Unincorporated*, Sample Fire Flow Letter – see **Attachment 7** LACFD Fire Flow Requirement

¹⁸⁶ AWWA Manual of Water Supply Practices M31 Fourth Addition “Distribution System Requirements for Fire Protection”, Page 18 - Rates of Water Use – see Attachment 14, AWWA Manual M31

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add emergency storage, in accordance with state regulations, AWWA, fire jurisdictions, and common practices for water systems within California?

(A) The answer is emphatically YES. As can be seen in our Artesia Water System Master Plan Table 5-7, the most demanding planning scenario for the North Side of the Artesia system is MDD + FF which is 5,945 gpm and is indeed greater than total available water supply of 4,966 gpm within the North Side of the Artesia System. This shortcoming in total available supply to meet the most demanding scenario of MDD + FF can be mitigated through 1) adding additional water supply, or 2) utilizing water storage capable of meeting FF component of the 'MDD + FF' demand scenario.

(Q) Does GSWC plan to add new water supply in the north part of the Artesia water system, specifically at the Elaine Plant?

(A) Yes. In this proceeding, GSWC has provided testimony supporting the need to replace Massinger Well No. 1. (Note: justification for the need to replace Massinger Well No. 1 will be discussed at length following the Elaine Booster Station rebuttal). GSWC plans to construct the replacement well for Massinger Well No. 1 at the Elaine Plant.

(Q) Why does GSWC want to construct a replacement well for Massinger Well No. 1 at the Elaine Plant?

(A) There are a number of reasons. First, GSWC already owns the land at our Elaine Plant and it is of sufficient size to accommodate a new groundwater well. Second, the plant site centrally located in the northern part of the Artesia System and will allow for efficient distribution of groundwater produced from the Elaine well. Third, the addition of new groundwater supply in the north will offset the need to purchase MWD water during MDD – a savings in water supply costs. Lastly, GSWC is leveraging the poor condition

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1 of Massinger Well No. 1 that is located in the southern part of the Artesia system and
2 constructing the replacement well in the northern part of the Artesia system. In accord
3 with groundwater basin management and state water resources regulations, we cannot
4 simply add a new well to a water system. However, we are allowed to replace wells.
5 That is, GSWC selected Massinger Well No. 1 as a well to replace and to construct the
6 replacement well at our Elaine Plant. As indicated by Cal Advocates, GSWC has
7 sufficient groundwater supply in the Southern part of the Artesia system without
8 Massinger Well No. 1. Therefore, by replacing Massinger Well No. 1 with a new well at
9 our Elaine Plant, we are adding new groundwater supply within the northern part of the
10 Artesia system where groundwater will offset purchased water. In sum, replacing
11 Massinger Well No. 1 in the southern part of the system is a means to allow us to
12 construct a new well in the north part of the system. Once the Elaine Well is
13 constructed, GSWC will destroy Massinger Well No.1 as required by Department of
14 Water Resources.¹⁸⁷

15
16 (Q) Does Cal Advocates recommend the Commission deny the Elaine Booster Station and
17 ancillary equipment be denied.

18
19 (A) Yes, Cal Advocates states the booster station¹⁸⁸ and ancillary equipment¹⁸⁹ are
20 associated with the Elaine reservoir discussed above, and because Cal Advocates'

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24 ¹⁸⁷ Department of Water Resource, Bulletin 74.

25 ¹⁸⁸ Report and Recommendations on Region 2 Plant and Safety Issues at 5:9 – 12.

26 ¹⁸⁹ *Id.* 5:14 – 18.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 analysis concludes the reservoir is not needed then the booster station and ancillary
2 equipment are not needed.

3
4 (Q) Does GSWC agree with Cal Advocates' recommendation for the Commission to deny
5 the booster station and ancillary equipment?

6 (A) No, GSWC provided overwhelming evidence and support for the approval of the Elaine
7 Reservoir, and if the Commission agrees with GSWC on the need for the Elaine
8 Reservoir, the Commission should also find in favor of GSWC's need for the booster
9 station and ancillary equipment.

10
11 (Q) Did Cal Advocates express any other concerns with these projects?

12 (A) No.

13
14 **Massinger Well No. 1 Replacement**

15
16 (Q) Is there another project you would like to address?

17 (A) Yes. Massinger Well No. 1 Replacement in the Artesia System, Central Basin East
18 CSA.¹⁹⁰

19
20 (Q) How much did GSWC request for this project?

21 (A) \$3,828,300 in 2021.

22
23
24
25
26 ¹⁹⁰ Hanford and Insko Operating District Capital Testimony at 122.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request for the Massinger Well No. 1 Replacement project in the Artesia System?

(A) Yes, Cal Advocates bases its recommendation on three reasons:

1) "The Artesia System has enough supply capacity to meet demands without the Massinger Well No. 1."¹⁹¹

2) "Location of the replacement well is questionable."¹⁹²

3) "GSWC failed to perform due diligence in mitigating the sand issue at the Massinger Well No. 1."¹⁹³

(Q) Do you agree with Cal Advocates reasoning and, ultimately, its recommendation?

(A) No, all three reasons presented by Cal Advocates are fundamentally flawed and unfounded.

(Q) Would you like to discuss Reason No. 1 presented by Cal Advocates?

(A) Yes, Reason No. 1 presented by Cal Advocates claims "The Artesia System has enough supply capacity to meet demands without water supply from Massinger Well No. 1."¹⁹⁴ What Cal Advocates fails to acknowledge is the MDD in the Artesia System North Zone exceeds the groundwater supply in the same zone, resulting in GSWC having to purchase water to meet demands greater than the groundwater supply. As stated in GSWC's Operating District Capital Testimony "Pumping and treating water

¹⁹¹ Report and Recommendations on Region 2 Plant and Safety Issues at 6:5 – 6.

¹⁹² Ibid. at 6:7.

¹⁹³ Ibid. at 6:8 – 9.

¹⁹⁴ Ibid. at 6:5 – 6.

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1 from the groundwater basin is more cost effective than purchasing water from
2 MWD[Metropolitan Water District] (the unit cost of purchasing water in the Artesia
3 System is \$1,283.92 per acre-foot (AF), while the unit cost of groundwater in the
4 System (comprised of pump tax and energy and operating expenses) is approximately
5 \$506/AF).¹⁹⁵ GSWC provided a cost-benefit analysis in its original testimony that
6 demonstrates it is more cost effective to construct and operate a groundwater well in the
7 Artesia System North zone than it is to purchase potable water from MWD. The cost-
8 benefit analysis concludes the NPV for constructing and operating a replacement well
9 that produces 900 gpm over 45 years is \$21.7 million. Conversely, purchasing potable
10 water from MWD at an equivalent rate over the same period of time (900 gpm over 45
11 years) has a NPV of \$45.3 million¹⁹⁶.

12
13 In sum, it is far more economical and advantageous to our ratepayers for GSWC to
14 construct and operate a replacement well for Massinger Well No. 1 to reduce water
15 supply costs and to provide highly reliable water supply.

16
17 (Q) Would you like to discuss Reason No. 2 presented by Cal Advocates?

18 (A) Yes, Cal Advocates claim “Justification for the replacement well is not supported by the
19 proposed location.”¹⁹⁷ is factually wrong. As discussed under GSWC’s rebuttal to
20 Reason 1, Artesia System North zone has a deficiency in groundwater supply to meet
21 MDD in this zone. The Elaine Plant is a property currently owned by GSWC and is

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24 ¹⁹⁵ Hanford and Insko Operating District Capital Testimony at 122:13 - 17.

25 ¹⁹⁶ Hanford, Insko – Vol 6 Attachments SM05 – CBE04, Attachment CBE02, pages 1

26 ¹⁹⁷ Report and Recommendations on Region 2 Plant and Safety Issues at 8:6 – 7.

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located in the heart of Artesia System North zone. This location is ideal for constructing the replacement well for Massinger Well No. 1 as the water supply will offset the groundwater supply deficiency in Artesia System North zone.

(Q) Would you like to discuss Reason No. 3 presented by Cal Advocates?

(A) Yes, Cal Advocates claim “GSWC failed to perform due diligence in mitigating silt production in the Massinger Well No. 1.”¹⁹⁸ is again factually incorrect. First, Cal Advocates misstates the facts. GSWC’s testimony states “Massinger Well No. 1 is 57 years old and at the end of its useful life. The well is currently offline and producing excessive silt (fine sand) that is plugging the onsite water system. The 2019 Wood Rodgers Well Assessment report for the Artesia system recommends well replacement.”¹⁹⁹

In terms of the detrimental impacts of sand and silt entering a well, the materials abrade the well casing screens, the well pump impellers, and the well pump shaft bearings. As the silt and sand abrade the openings in the well casing screen material, it enlarges the openings, allowing gravel pack material (small gravel material installed in the annulus area between the outside of the well casing and well casing screen) to fall into the well. Gravel pack holds the earthen well hole in place and allows water to flow from the native earthen material through the gravel pack and into the well casing through well casing screens. The gravel pack is also designed, or sized, to prevent silt and sand within the native earthen material from becoming fluidized and carried through the

¹⁹⁸ Report and Recommendations on Region 2 Plant and Safety Issues at 8:19 – 20.

¹⁹⁹ Hanford and Insko Operating District Capital Testimony at 122:8 – 11.

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1 gravel pack into the well. Essentially, the gravel pack serves to retain the native
2 earthen material in place and serves as a filter barrier to keep sand from entering the
3 groundwater well through the well screen. However, the gravel pack does little to
4 prevent silt from entering the well.

5
6 (Q) As recommended by Cal Advocates, if GSWC were to place a well head filter system on
7 the effluent of the well pump, would this remove silt from the groundwater produced
8 from the well and keep it from fouling the well head treatment system and entering the
9 drinking water system?

10 (A) Yes, this would mitigate the silt fouling issue with well head treatment systems and
11 would mitigate silt entering the drinking water system.

12
13 (Q) Would installation of a filter system extend the life of the failing groundwater well?

14 (A) No, the fact that the well is pulling in fluidized silt, combined with other well failure
15 cohorts identified in the Wood Rodgers report²⁰⁰, the conclusion and recommendation by
16 Wood Rodgers is well founded. Additionally, using a sand separator or filter system at
17 the ground surface to remove sand is treating the symptom, it is not addressing the
18 problem (i.e. the age of the well and its propensity towards failure).

19
20 (Q) Would a filter system for removing silt be a prudent investment by GSWC?

21 (A) No. A filter system capable of removing silt typically consists of multiple pot filters fitted
22 with extra-fine mesh bag filters. The pour opening of the extra-fine mesh bag filters
23 results in a significant reduction in water that can pass through them and increases the
24

25
26 ²⁰⁰ Hanford, Insko – Vol 6 Attachments SM05 – CBE04, Attachment CBE01 at 1 – 18.

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pressure loss. Therefore, adding pot filters on the effluent of the well pump would likely require replacement of the well pump and motor with a higher head (or pressure) pump and larger horsepower motor. A larger horsepower motor would likely require the replacement of the electrical equipment and installation of a new electric service from Southern California Edison. A rough order of magnitude for adding a pot filter system to remove silt would require a capital investment of approximately \$500,000 (\$50k for SCE service upgrade, \$150k for well pump & motor, \$200k for electric panel and controls, \$50k for two pot filters, \$50k for design & permitting). Cal Advocates' findings and recommendation "A simple google search of "industrial well water sediment filter" results in various fine sediment removal options for well water"²⁰¹ is not well thought out. Cal Advocates' recommendation would have us invest approximately \$500,000 into a well that is nearly 60 years and identified by Wood Rodgers' as needing to be replaced.

(Q) What did Wood Rodgers conclude in its well assessment report?

(A) Wood Rodgers concludes "The Massinger Well No. 1 has had numerous well and pump rehabilitations over its life span. Given the age (57 years), well materials used (mild steel), and current operating condition, it is likely that future well rehabilitation events will have a low chance of success at increasing specific capacity and decreasing sand production from this well. Since the Massinger Well No. 1 is currently offline, it is estimated that the Massinger Well No. 1 will need to be replaced."²⁰²

²⁰¹ Report and Recommendations on Region 2 Plant and Safety Issues at 9:3 – 5.

²⁰² Hanford, Insko – Vol 6 Attachments SM05 – CBE04, Attachment CBE01 at 5 of 18

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Is the Wood Rodgers report prepared by or under the guidance of Professional
2 Geologists and Certified Hydrogeologists registered within, and licensed by, the State of
3 California?

4 (A) Yes, the Wood Rodgers report was authored and sealed by Professional Geologists
5 and Certified Hydrogeologists.
6

7 (Q) Would you like to summarize your rebuttal testimony on the Massinger Well No. 1
8 project?

9 (A) Yes, the Commission should disregard the recommendations of Cal Advocates to deny
10 the replacement of Massinger Well No. 1.
11

12 Cal Advocates' position, "The Artesia System has adequate supply capacity without the
13 Massinger Well No. 1"²⁰³ under its 'Reason 1' heading, does not holdup. In the above
14 testimony, GSWC clearly demonstrates the water supply from a replacement well for
15 Massinger Well No. 1 will financially benefit the ratepayers by utilizing groundwater
16 supply in lieu of purchasing MWD water and increase the water supply reliability for
17 customers within the Artesia System North zone.
18

19 In regard to 'Reason 2' presented by Cal Advocates, GSWC has refuted Cal Advocates'
20 assertion "Justification for the replacement well is not supported by the proposed
21 location."²⁰⁴ (i.e. replacing Massinger Well No. 1 at the Elaine Plant) as untrue and
22 unfounded. GSWC has provided compelling evidence that locating the replacement
23

24
25 ²⁰³ Report and Recommendations on Region 2 Plant and Safety Issues at 6:11 – 12.

26 ²⁰⁴ *Id.* at 8:6 – 7.
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 well for Massinger Well No. 1 at GSWC's Elaine Plant will mitigate a groundwater
2 supply deficiency in the Artesia System North zone and GSWC already owns the Elaine
3 Plant site.

4
5 Lastly, Cal Advocates' claim in 'Reason 3' is totally off base, unsupported, and
6 unfounded. GSWC based its determination that the Massinger Well No. 1 needs to be
7 replaced on a third party analysis by Wood Rodgers, a renowned consulting firm with
8 Professional Geologists and Certified Hydrogeologists. Wood Rodgers' analysis was
9 based on geological conditions, characteristics of the well casing materials, the number
10 of historical well rehabilitations and pump replacements, and sand production of the
11 well.

12
13 (Q) Did Cal Advocates express any other concerns with these projects?

14 (A) No.

15 16 Roseton Well No. 1 Replacement

17
18 (Q) Is there another project you would like to address?

19 (A) Yes. Roseton Well No. 1 Replacement in the Artesia System, Central Basin East
20 CSA.²⁰⁵

21
22 (Q) How much did GSWC request for this project?

23 (A) \$4,104,500 in 2023.
24
25

26 ²⁰⁵ Hanford and Insko Operating District Capital Testimony at 123.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Does Cal Advocates recommend the Commission deny this project?

(A) Yes, Cal Advocates states that there is sufficient supply even without Roseton Well No. 1, so no replacement is needed.

(Q) Is Cal Advocates correct?

(A) No. Cal Advocates fails to appreciate that the purpose for the well replacement is to save on increased water purchase costs, not to meet demand. There are currently two groundwater wells in the Artesia System North zone – Roseton Well No. 1 with a capacity of 800 gpm and Roseton Well No. 2 with a capacity of 1,100 gpm.²⁰⁶ The MDD demand in the Artesia System North zone is 1,945 gpm.²⁰⁷ As Cal Advocates indicates, GSWC has access to purchased water in this zone and GSWC could make use of water supply from this purchased water connection to meet MDD demands. As discussed above under the rebuttal testimony for the replacement of Massinger Well No. 1 in Artesia System North zone, there is already a deficiency in groundwater supply with Roseton Well No. 1 in service. If we lose the Roseton Well No. 1, the need to rely on purchased water will only increase. In challenging this project, Cal Advocates ignores the fact that purchased water is more than double the cost of groundwater.²⁰⁸

(Q) Does Cal Advocates have another reason to oppose this project?

²⁰⁶ Report and Recommendations on Region 2 Plant and Safety Issues at 10, Table 1-6 (Table 5-5 from Artesia System Water Master Plan).

²⁰⁷ Report and Recommendations on Region 2 Plant and Safety Issues at 10, Table 1-7 (Table 5-7 from Artesia System Water Master Plan).

²⁰⁸ Hanford and Insko Operating District Capital Testimony at 122:13-17.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Yes, Cal Advocates states “GSWC’s testimony demonstrates that despite the age of the Roseton Well No. 1, the well is operational and does not need to be replaced.”²⁰⁹ Cal Advocates follows this statement with an excerpt from the Wood Rodgers report “The Roseton Well No. 1 is currently online and has good water quality. However, the well is aging and nearing the end of its useful life. It is estimated that Roseton Well No. 1 has an estimated remaining useful life of approximately five years. If the well’s current production is critical to the Artesia System, then well replacement is recommended prior to decommissioning of Roseton Well No. 1.”²¹⁰ Cal Advocates follows the aforementioned with “This report demonstrates that there is no urgent need to replace the Roseton Well No. 1. The report clearly states that the well should be replaced prior to decommissioning only if the well’s current production is critical to the Artesia System.”²¹¹ Cal Advocates then concludes “As discussed above, Roseton Well No. 1 is not critical to the Artesia System operation. A well with five years of remaining useful life that is “currently online” and “has good water quality” should not be replaced especially when the production from the well is not critical to the Artesia System.”²¹²

(Q) Do you agree with Cal Advocates findings and conclusion?

(A) No, GSWC does not agree with Cal Advocates’ findings or its conclusion. Cal Advocates refers to the Wood Rodgers determination that the well has an estimated remaining useful life of five years. Cal Advocates also states water supply from

²⁰⁹ Report and Recommendations on Region 2 Plant and Safety Issues at 11:18 – 19.

²¹⁰ Report and Recommendations on Region 2 Plant and Safety Issues at 12:1 – 6.

²¹¹ *Id.* at 12:8 – 10.

²¹² *Id.* at 12:10 – 14.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Roseton Well No. 1 is not critical. As described in previous paragraphs, water supply from Roseton Well No. 1 and its replacement well are indeed critical in regards to water supply costs for the Artesia ratepayers. As presented in a cost-benefit analysis included in GSWC application testimony²¹³, the cost-benefit analysis concludes the NPV for purchasing water from MWD in lieu of pumping water from a replacement well for Roseton Well No. 1 over 45 years is \$22.7M for water purchased from MWD and \$13.1M for constructing and operating a replacement well. The cost of drilling and operating a replacement well is almost half of what it costs to purchase water from MWD. Cal Advocates may not deem this cost differential as 'critical', but GSWC and its customers do.

(Q) Does Cal Advocates make another claim to support its recommended denial of Roseton Well No. 1 you would like to discuss?

(A) Yes, Cal Advocates states "Despite the age of Roseton Well #1, it is currently operational, produces good quality water, and has remaining useful life."²¹⁴ There is clearly more to determining the remaining useful life of a groundwater well than 'it is still operating' and 'producing good quality water'. Wood Rodgers evaluated the history of the well, the materials of the well, the declining production of the well, and current operating conditions and concluded "it is likely that future well rehabilitation events will have a low chance of success at increasing capacity and specific capacity for this well."²¹⁵

²¹³ Hanford, Insko – Vol 6 Attachments SM05 – CBE04, Attachment CBE03.

²¹⁴ Report and Recommendations on Region 2 Plant and Safety Issues at 9:17 – 18.

²¹⁵ Hanford, Insko – Vol 6 Attachments SM05 – CBE04, Attachment CBE01 at 7.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Does the remaining life necessitate replacing Roseton Well No. 1 during the 2020 GRC
2 rate cycle?

3 (A) Yes. The Wood Rodgers report was prepared in March 2020 and it concluded the well
4 has five years remaining useful life or an end of life of 2025. GSWC needs approval
5 from the Commission in this proceeding so we can replace the well prior to its failure.
6 The process for constructing a replacement well is lengthy. The entire process, from
7 permitting to producing water, typically takes two to three years. The process begins
8 with obtaining a Conditional Use Permit from the City/County so the City/County will be
9 the lead agency through the CEQA process. Once this is complete we drill a test hole
10 to gain needed information for the hydrogeologist to prepare well construction plans.
11 We then bid out the well construction project, construct the well, perform test pumping
12 of well, design well equipping plans based on capacity determined in prior step. Once
13 well equipping plans are complete, we bid out the construction work and proceed with
14 constructing the well equipping improvements (disinfection system, well pump, controls,
15 power, SCADA, connection to water system, connection to storm drain to allow us to
16 pump well to waste), obtain permit to operate the well, and place the well into service. If
17 this project is deferred to the 2023 GRC, GSWC would likely receive the Commission's
18 decision on its 2023 GRC proceeding sometime in December 2024 or January 2025. At
19 this point, it would be another two or three years to permit and construct a replacement
20 groundwater well. As demonstrated, this is well beyond the remaining useful well life of
21 five years for Roseton Well No. 1.

22
23 In summary, GSWC has provided overwhelming evidence that supports the
24 replacement of Roseton Well No. 1. The evidence includes a well condition analysis by
25 Wood Rodgers that concludes the well should be replaced, a cost-benefit analysis
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 indicating it is almost half the cost to construct and operate a replacement groundwater
2 well in lieu of purchasing MWD, and there is a groundwater supply deficiency in Artesia
3 System North zone. Based on this evidence, the Commission should support
4 replacement of Roseton Well No. 1 in this proceeding.

5
6 (Q) Did Cal Advocates express any other concerns with these projects?

7 (A) No.

8
9 **Norwalk System**

10
11 **Imperial Tanks – Recoat and Upgrade**

12
13 (Q) Is there another project you would like to address?

14 (A) Yes. Imperial Tanks – Recoat and Upgrade in the Norwalk System, Central Basin East
15 CSA.²¹⁶

16
17 (Q) How much did GSWC request for this project?

18 (A) \$1,046,800 in 2021.

19
20 (Q) Does Cal Advocates recommend that the Commission deny GSWC's request for the
21 Imperial Tank – Recoat and Upgrade in Norwalk System?

22 (A) Yes, Cal Advocates recommend that the Commission deny the project.

23
24
25 _____
26 ²¹⁶ Hanford and Insko Operating District Capital Testimony at 125.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) On what basis does Cal Advocates make its recommendation?

2 (A) Cal Advocates claims that GSWC misinterprets the Harper & Associates Engineering,
3 Inc. Report, which concludes the following.²¹⁷

- 4 • Exterior painting should be accomplished when the interior is recoated.
- 5 • When the interior is recoated, it is recommended to accomplish numerous structural
- 6 modifications.
- 7 • The interior surface is in overall fair condition. The reservoir should be evaluated in
- 8 two to three years to monitor the corrosion rate.

9
10 (Q) Does GSWC take exception to Cal Advocates' interpretation of the Harper & Associates
11 Engineering, Inc. Report and the recommendations thereof?

12 (A) Yes, Cal Advocates interpretation of the recommendations within the Harper &
13 Associates, Inc. Report is flawed and Cal Advocates relies on its misinterpretation to
14 recommend the Commission deny the project. That is, Cal Advocates contends the
15 interior recoating is a prerequisite to GSWC performing the exterior recoating and other
16 tank modifications. Cal Advocates concludes that because GSWC did not perform a
17 follow-up tank corrosion evaluation after the 2017 Harper & Associates Report, that
18 GSWC has not performed due diligence in justifying the tank recoating project. GSWC
19 notes four years have passed since the 2017 corrosion evaluation was conducted. The
20 2017 report noted the exterior coating system had failed and warranted recoating. The
21 same report noted "The coating system on the interior surface is in overall fair condition.
22 However, the age of the coating system is unknown and it appears to be reaching the
23
24

25 ²¹⁷ Report and Recommendations on Region 2 plant and Safety Issues at 13:9 – 15.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 end of its life expectancy.”²¹⁸ Based on the condition of the coating system noted in
2 Harper & Associates, Inc. Report, the photos presented below, and the fact that four
3 years have passed, GSWC concludes performing another tank corrosion evaluation is
4 not warranted or required. The fact is, the exterior coating system has failed, the
5 interior coating system has worsened since 2017, and the safety upgrades are needed.
6 If we allow the failed coating system to remain until the 2023 GRC, we damage the
7 structural integrity of the steel due to corrosion. If the integrity of the steel is lost, we
8 may have to construct a replacement tank rather than recoat the existing tank. The
9 Harper & Associates, Inc. Report concludes tank rehabilitation cost with recoating is
10 52.5% of the cost to replace the tank.²¹⁹

11
12 (Q) Do you have photos from the 2017 report that provide an overview of the condition of
13 the interior coating system?

14 (A) Yes. Following this paragraph, GSWC has included select photos from the Harper &
15 Associates, Inc. Report to provide a visual condition of the interior coating system at
16 some of the most troubling locations. Although the interior coating was noted to be in
17 ‘overall fair condition’, the photos presented below clearly demonstrate the coating
18 system was stressed and would surely be in worse condition after four more years.²²⁰

19
20
21
22
23
24 ²¹⁸ Hanford, Insco – Vol 6 Attachments SM05 – CBE04, Attachment CBE04 at 11.

25 ²¹⁹ Hanford, Insco – Vol 6 Attachments SM05 – CBE04, Attachment CBE04 at 14.

26 ²²⁰ *Id.* at 30 – 36.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

I-4 View of a portion of the inner bay, illustrating random delamination and corrosion along the roof lap joints, roof to vent transition, and roof plates.



I-18 View of the inlet pipe, illustrating delaminating coating and corrosion on the piping and support brace.

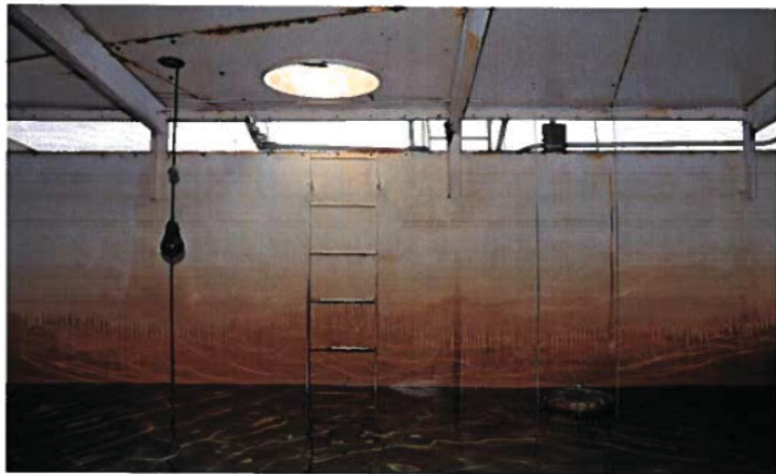


ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

I-20 Same as Photos I-18 and I-19, except a closer view of the stand-off support brace and u-bolt.



I-22 View of the ladder just above the waterline, illustrating staining on the ladder and adjacent shell.



The 2017 Harper & Associates report also states nine recommendations for structure modifications for safety, health and the compliance of Cal/OSHA regulations and two more rehabilitation recommendations.²²¹

²²¹ Hanford, Insko – Vol 6 Attachments SM05 – CBE04, Attachment CBE04 at 16.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Would you like to summarize your findings?

(A) Yes. Regardless of whether we re-inspected the coating system prior to this GRC, the exterior coating system was known to be in poor condition and the photos of the interior coating system demonstrate it is prudent for GSWC to recoat the interior and exterior of the tank and perform the safety upgrades as part of the 2020 GRC.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) No.

Replacement Well Land Acquisition

(Q) Is there another project you would like to address?

(A) Yes. Replacement Well Land Acquisition in the Norwalk System, Central Basin East CSA for the replacement of Imperial Well No. 2.²²²

(Q) How much did GSWC request for this project?

(A) \$3,096,700 in 2021.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request to purchase land for the future replacement of Imperial Well No. 2, a groundwater well that supplies water to the Norwalk System?

(A) Yes, Cal Advocates recommend the Commission deny GSWC's request to purchase land for the replacement of Imperial Well No. 2.

²²² Hanford and Insko Operating District Capital Testimony at 127.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) On what basis does Cal Advocates make its recommendation?

(A) “The Norwalk System has adequate supply capacity without Imperial Well No. 2”²²³

(Q) Does Cal Advocates question the condition of Imperial Well No. 2?

(A) No, Cal Advocates bases its position solely on the total water supply available to the Norwalk System.

(Q) Has there been any change in groundwater supply since GSWC filed the application for this rate?

(A) Yes. Imperial Well No. 1 and Dace Well No. 2 are currently out of service. Imperial Well No. 1 produced 800 gpm and Dace Well No. 2 produced 2,000 gpm. Imperial Well No. 1 experienced a physical well casing problem September 2019 that is preventing GSWC from reinstalling the well pump. The well casing has since been assessed and deemed unrepairable. On February 1, 2021, GSWC obtained sample results for Dace Well No. 2 indicating Benzene (a Volatile Organic Compound) was present at 0.94 µg/L (ppb or parts per billion). A confirmation sample was pulled and result obtained on February 9, 2021 with Benzene levels of 0.97 µg/L and 0.86 µg/L. The State of California Division of Drinking Water’s maximum contaminant level (MCL) for Benzene is 1.0 µg/L. After receiving a confirmation sample, we took the well offline.

(Q) How does this impact the water supply within the Norwalk system as a whole?

²²³ Report and Recommendations on Region 2 plant and Safety Issues at 14:7 - 8.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) According to Table 5-5²²⁴ of the Norwalk Master Plan, and at the time of the application filing, the total groundwater supply for the entire Norwalk system was 5,200 gpm. With the loss of Imperial Well No. 1 and Dace Well No. 2, the current total groundwater supply is 2,400 gpm. From Table 5-9 of the Norwalk Master Plan, the MDD for the entire Norwalk system is 4,169 gpm. Currently the MDD for the entire Norwalk system is greater than the total groundwater supply, requiring GSWC to purchase MWD water to meet MDD. As Cal Advocates correctly points out, GSWC is currently equipping Studebaker Well No. 3 for a production capacity of 1,000 gpm. With the addition of Studebaker Well No. 3, we will have a total groundwater supply of 3,400 gpm, which still falls short of the system wide MDD of 4,169 gpm.

(Q) Does Cal Advocates consider demands for the entire Norwalk system when conducting its analysis that GSWC has sufficient groundwater supply?

(A) No. Cal Advocates only considers the demand of West Norwalk and excludes the demand of East Norwalk.

(Q) Does groundwater produced in West Norwalk serve customers in East Norwalk?

(A) Yes. Groundwater produced from wells in West Norwalk also serve customers located in East Norwalk. GSWC does not have any groundwater wells in East Norwalk, so groundwater produced in West Norwalk is utilized in East Norwalk in lieu of purchasing MWD water.

²²⁴ Report and Recommendations on Region 2 plant and Safety Issues at 14:12 - 13.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 The cost for producing groundwater versus purchasing water from MWD is \$482 per
2 acre-foot and \$1,268 per acre-foot, respectively²²⁵. With the cost for producing
3 groundwater being less than half of the cost for purchasing MWD water, it is in the best
4 interest of our customers for GSWC to purchase land under this proceeding to allow for
5 the replacement of Imperial Well No. 2 under the 2023 GRC.

6
7 (Q) Does Cal Advocates challenge the findings and recommendation of Wood Rodgers to
8 replace Imperial Well No. 2?

9 (A) No, Cal Advocates offers no testimony and did not present any empirical evidence to
10 support its position. Therefore, based on this empirical evidence presented by GSWC,
11 the Commission should support GSWC's acquisition of land in its decision for this GRC
12 to allow GRC to replace Imperial Well No. 2 in the 2023 proceeding.

13
14 In summary, the MDD for the entire Norwalk system exceeds the total groundwater
15 supply capacity. Therefore, it is more economical to maximize the use of groundwater
16 within the Norwalk system to offset the quantity of water purchased from MWD. For
17 these reasons, the Commission should support GSWC's request to acquire land for the
18 future replacement of Imperial Well No. 2.

19
20 (Q) Did Cal Advocates express any other concerns with these projects?

21 (A) No.
22
23
24

25 _____
26 ²²⁵ Hanford, Insko – Operating District Capital Additions at 128:12 – 16.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Bell-Bell Gardens System

Bissell Plant – Expansion of Manganese Treatment

(Q) Is there another project you would like to address?

(A) Yes. Bissell Plant – Expansion of Manganese Treatment in the Bell-Bell Gardens System, Central Basin West CSA.²²⁶

(Q) How much did GSWC request for this project?

(A) \$2,169,800 in 2023.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request for the Bissell Plant – Expansion of Manganese Treatment project in the Bell-Bell Gardens System?

(A) Yes, Cal Advocates states The Commission deny GSWC's request for this project for the following three reasons: ²²⁷

- The manganese level is below the Secondary Maximum Contaminant Level (SMCL).
- The existing supply is enough to meet the system demand without the added treatment capacity.
- Bell-Bell Gardens System does not require Bissell Wells No. 2 and No. 3 operating concurrently.

²²⁶ Hanford and Insko Operating District Capital Testimony at 136.

²²⁷ Report and Recommendations on Region 2 plant and Safety Issues at 20:5 – 11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Would you like to discuss reason No. 1 presented by Cal Advocates?

2 (A) Yes, reason No. 1 presented by Cal Advocates claims “The manganese level is below
3 the Secondary Maximum Contaminant Level (SMCL).”²²⁸ GSWC is aware that the
4 overall average manganese concentration does not exceed the SMCL at Bissell Well
5 No. 3. However, GSWC’s reason for pursuing manganese treatment for this well is not
6 to achieve compliance with the SMCL; rather, it is to avoid customer water quality
7 complaints in the areas served by this well that are driving the need for manganese
8 treatment. GSWC has determined that the predominant cause of customer complaints
9 about colored water in the areas influenced is the presence of manganese in the well
10 and that these complaints have occurred even at manganese levels below the SMCL.
11

12 (Q) Does GSWC agree with Cal Advocates’ position that using the manganese level at the
13 Bissell Well No. 3 is the wrong data point for GSWC’s analysis and conclusion²²⁹?

14 (A) GSWC disagrees with Cal Advocates’ statement that using the manganese level at the
15 Bissell Well No. 3 is the wrong data point for GSWC’s analysis and conclusion. As
16 discussed in GSWC’s Capital Testimony, Bissell Well No. 3 is currently operated
17 through the treatment plant originally designed for Bissell Well No. 2, which was offline.
18 To bring Bissell Well No. 2 back online, additional manganese treatment is needed for
19 Bissell Well No. 3. The purpose of GSWC using the manganese level at the Bissell Well
20 No. 3 is to show that without manganese treatment, the precipitated manganese from
21 this well can cause precipitation in the distribution system and colored water complaints
22
23

24 ²²⁸ Ibid. at 20:6 – 7.

25 ²²⁹ Report and Recommendations on Region 2 Plant and Safety Issues at 20:25.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 from customers. Based on the 2013 Water Research Foundation's report²³⁰ as cited in
2 GSWC's testimony, manganese concentrations lower than the SMCL can still lead to
3 unacceptable colored water events and customer complaints through precipitation in the
4 distribution system. With the proposed manganese treatment, manganese levels will
5 likely decrease to below the detectable levels (as low as 0.002 mg/L). The manganese
6 level of the Bissell Well No. 3's treated water from 2016 to 2019 while using Bissell Well
7 No. 2's intended treatment facility supported our projection for manganese levels in
8 Bissell Well No. 3's treated water if the proposed manganese treatment is installed. This
9 is the equivalent of preventing up to 306 pounds per year of manganese²³¹ from Bissell
10 Well No. 3 from entering into, and accumulating in, the distribution system.
11

12 (Q) Would you like to discuss reason No. 2 presented by Cal Advocates?

13 (A) Yes, reason No. 2 presented by Cal Advocates claims "The existing supply is enough to
14 meet the system demand without the added treatment capacity." GSWC takes no
15 exception to Cal Advocates above statement regarding reason No. 2, but Cal Advocates
16 misunderstands the purpose of the project. The purpose of this project is to provide full
17 treatment capacity for both wells to fully utilize its production capacity and at the same
18 time, to resolve color complaints near Bissell plant in the system. Discussing supply
19 capacity and supply demand on a water quality project such as, Bissell Plant –
20 Expansion of Manganese Treatment is irrelevant and misleading in regard to the
21 purpose of the project.
22
23
24

25 ²³⁰ Hanford, Insko - Vol 9 Attachments FH02 - P02, Attachment LA04 at 24.

26 ²³¹ EXCEL file, "Mn loading rate_Bissell Well #3" attached hereto as **Attachment 8**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Would you like to discuss reason No. 3 presented by Cal Advocates?

2 (A) Yes, reason No. 3 presented by Cal Advocates claims "Bell-Bell Gardens System does
3 not require Bissell Well No. 2 and No. 3 operating concurrently." Groundwater
4 produced from Bissell Well No. 2 and Bissell Well No. 3 (production capacities of 1,000
5 gpm and 2,000 gpm, respectively) is conveyed directly into the Bissell reservoirs. The
6 Bissell booster pump station (BPS) draws water from the reservoirs and boosts water
7 from the reservoirs into the distribution system to meet water demands. The total
8 booster capacity of Bissell BPS is 3,335 gpm (Pump A capacity is 1,135 gpm, Pump B
9 capacity is 1,200 gpm, and Pump C capacity is 1,000 gpm). The well capacity for the
10 Bissell Well No. 3 is 2,000 gpm. Therefore, the capacity of the Bissell BPS is 1,335
11 gpm greater than the groundwater supply capacity. Expanding the Mn treatment
12 capacity to accommodate the production of Bissell Well No. 2 increase total
13 groundwater supply capacity to 3,000 gpm. This will allow the groundwater supply to
14 nearly match the BPS capacity, which will allow GSWC to utilize the full capacity of the
15 BPS and the groundwater supply at Bissell Plant.

16
17 (Q) Do you agree with Cal Advocates findings and conclusion?

18 (A) No, GSWC is seeking to expand its well production capacity and reduce its reliance on
19 the (increasingly) expensive purchased water from the MWD's, while also ensuring the
20 robustness of the GSWC water system for all scenarios such as earthquakes, fires, and
21 other unpredictable and unplanned incidents.

22
23 (Q) Did Cal Advocates express any other concerns with these projects?

24 (A) No.
25
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Gage Well No. 2 Replacement

(Q) Is there another project you would like to address?

(A) Yes. Gage Well No. 2 Replacement in the Bell-Bell Gardens System, Central Basin West CSA.²³²

(Q) How much did GSWC request for this project?

(A) \$3,881,600 in 2022.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request to replace Gage Well No. 2, a groundwater well that supplies water to the Bell-Bell Gardens System?

(A) Yes, Cal Advocates recommend the Commission deny GSWC's request for replacing Gage Well No. 2.

(Q) On what basis does Cal Advocates make its recommendation?

(A) Cal Advocates presents three reasons the well replacement should be denied:

1) "The well is active and does not need to be replaced."²³³

2) "The Bell-Bell Gardens System has sufficient supply capacity."²³⁴

3) "Cost benefit of replacing the well is flawed."²³⁵

²³² Hanford and Insko Operating District Capital Testimony at 140.

²³³ *Id.* at 25:8.

²³⁴ *Id.* at 25:9.

²³⁵ *Id.* at 25:10.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Would you like to discuss Reason 1 presented by Cal Advocates?

(A) Yes, Reason 1 presented by Cal Advocates claims “The well is active and does not need to be replaced.”²³⁶ This claim is based on semantics in which Cal Advocates misrepresents the meaning of the term ‘active’ (in this case a groundwater well) as defined by California Division of Drinking Water (DDW). An active source is one that meets all existing drinking water standards and has been permitted by DDW. Thus, if a well is ‘offline’ due to operational reasons (i.e. mechanical, water quality, or groundwater conditions, etc.), this does not change the DDW status of the well. That is, a water purveyor can take a well ‘out of service’ (or offline) for any number of reasons without affecting the DDW status of ‘active’.

(Q) What is the current status of Gage Well No. 2?

(A) The DDW status of Gage Well No. 2 is ‘active’, however; GSWC has taken Gage Well No. 2 out of service due to excessive sanding issues.

As discussed in Wood Rodgers’ Well Assessment & Recommendations report for Bell-Bell Gardens System, Gage Well No. 2 was constructed in 1937 via cable tool drilling method.²³⁷ Within the industry, the cable tool well construction method does not incorporate a gravel pack and thus cable tool wells are known for producing sand. As noted in Wood Rodgers report, “Records suggest that the Gage Well No. 2 has had a long history of sand production. Removal of sediment [sand] fill was reported to have

²³⁶ Report and Recommendations on Region 2 Plant and Safety Issues at 25:8.

²³⁷ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW03, page 4.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 occurred in June 1966. In February 1971, Water Well Supply [GSWC] removed
2 sediment fill in the well from 526 feet to 595 feet. In May 2008, the top of sediment fill
3 was encountered at 566 feet depth during a well video survey performed by Lane
4 Christenson Company. The video survey also indicated significant biofouling and
5 tubercular encrustation throughout the entire saturated portion of the well structure.
6 Wood Rodgers reviewed a dynamic well video survey performed on September 25,
7 2012 by General Pump Company to assess the condition of the well structure under
8 pumping conditions. The video survey report indicated discolored water entering the
9 screen interval between approximately 426 and 436 feet, suggesting significant sand
10 production may be occurring from this zone.”²³⁸

11
12 Wood Rodgers continues with “Three well rehabilitation events have been reported for
13 Gage Well No. 2, including bailing of sediment fill (1966 and 1971) and chemical
14 treatment and brushing of the well structure to help remove tubercular deposits on the
15 well casing (1997). Email correspondence and project records indicated Gage Well No.
16 2 is currently offline and producing entrained sand, primarily on startup.”²³⁹

17
18 (Q) Please summarize the status of Gage Well No. 2.

19 (A) Cal Advocates’ statement “The well status in the Wood Rogers’[sic] report (“currently
20 offline”), as well as in the Hanford-Insko Testimony, conflicts with GSWC’s statement
21 that the well is currently active”²⁴⁰ is factually untrue and should be ignored by the
22

23
24 ²³⁸ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW03 at 4.

25 ²³⁹ Ibid.

26 ²⁴⁰ Report and Recommendations on Region 2 Plant and Safety Issues at 26:1 - 3.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Commission. The fact is, GSWC took Gage Well No. 2 out of service (or offline) due to excessive sand production, yet the well status remains 'active' with DDW.

(Q) Would you like to respond to Reason 2 that Cal Advocates presents to support its recommendation for the Commission to deny the Gage Well No. 2 replacement project?

(A) Yes, Cal Advocates Reason 2 recommends denial of this project because "The Bell-Bell Gardens System has sufficient supply"²⁴¹.

(Q) Do you agree with Cal Advocates findings?

(A) No. Although GSWC agrees with Cal Advocates' statement "Review of Bell-Bell Gardens Master Plan supply and demand analysis determined the system has an adequate supply even without the capacity from Gage Well 2"²⁴², GSWC is not proposing to replace Gage Well # 2 solely to mitigate a groundwater supply deficiency. The MDD for the entire Bell-Bell Gardens system is 4,580 gpm. Total groundwater supply capacity is 5,950 gpm. If GSWC does not replace Gage Well No. 2 and we lose this source of supply, the total groundwater supply is reduced to 4,950 gpm - which is nearly equal to the MDD. Following the filing of the application for this GRC, GSWC found PFAS in Clara Well No. 2 and has taken this groundwater source of supply out of service. If we allow Gage Well No. 2 to fail and with Clara Well No. 2 offline because of PFAS, our total groundwater supply is reduced to 3,950 gpm. This results in a groundwater supply deficiency of 630 gpm. Based on water supply costs, the cost to pump groundwater is \$466 per acre foot and the cost to purchase MWD water is \$1,268

²⁴¹ Report and Recommendations on Region 2 Plant and Safety Issues at 26:13.

²⁴² *Id.* at 26:14 - 15.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

per acre foot.²⁴³ Purchasing MWD water is more than double the cost of pumping groundwater.

To conclude, although GSWC has water supply available to meet MDD, it is much more cost effective to pump groundwater in lieu of purchasing MWD water.

(Q) Would you like to respond to Reason 3 Cal Advocates presents to support its recommendation for the Commission to deny the Gage Well No. 2 replacement project?

(A) Yes, Cal Advocates' Reason 3 on which it recommends denial of this project is the "Cost benefit of replacing the well is flawed."²⁴⁴

(Q) Do you agree with Cal Advocates' findings and recommendation?

(A) No, Cal Advocates appears to be asserting that when GSWC is authorized to replace Gage Well No. 2 with Gage Well No. 3 that GSWC will continue to utilize Gage Well No. 2.²⁴⁵ This again harkens back to Cal Advocates' erroneous view that, because Gage Well No. 2 is "active" from DDW's perspective, GSWC is obtaining water from it. The fact is that Gage Well No. 2 is offline and will not be brought back on-line because of its age and poor condition. Cal Advocates fails to understand that a well replacement is just that – the well designated to be replaced will be destroyed in accordance with California Department of Water Resources Bulletin 74. Thus, the new well is in fact a replacement well. As Cal Advocates would like you to believe, GSWC will not keep the

²⁴³ Hanford and Insko Operating District Capital Testimony at 141:5 -9.

²⁴⁴ Report and Recommendations on Region 2 plant and Safety Issues at 27:16.

²⁴⁵ *Id.* at 28:7 - 11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 well that has been identified for replacement. This is flat out erroneous. State
2 regulators will not allow GSWC to construct a new well without destroying the well that
3 is designated to be replaced.

4
5 In summary, GSWC has provided overwhelming evidence that supports the
6 replacement of Gage Well No. 2. The evidence includes a well condition analysis by
7 Wood Rodgers that concludes the well should be replaced, a cost-benefit analysis
8 indicating it is less than one-half the cost to construct and operate a replacement
9 groundwater well in lieu of purchasing MWD, and there is currently a groundwater
10 supply deficiency in Bell-Bell Gardens System. Based on this evidence, the
11 Commission should support replacement of Gage Well No. 2 in this proceeding.

12
13 (Q) Did Cal Advocates express any other concerns with these projects?

14 (A) Yes. Cal Advocates states “if the well is impacted by excessive sand production and
15 require[s] high maintenance on its granular activated carbon (GAC) filter, GSWC should
16 consider mitigating the sand issues first, such as by installing a sand separator or a
17 sand filter, rather than by replacing an active well”²⁴⁶ As discussed under our rebuttal
18 testimony for Massinger Well No. 1 Replacement above, installation of a sand separator
19 or sand removal system: 1) does not address the fact that sand entering a groundwater
20 well is a sign that the well has failed – per the Wood Rodgers report; and 2) installing a
21 sand separator at the ground surface does not prevent the sand from damaging the well
22 and the well pump. Replacing a well before it totally fails (i.e. collapses and fills with
23 sand) is akin to not replacing the tires on your car until they blow out. Groundwater

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26 ²⁴⁶ *Id.* at 26:8 - 11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 wells and tires are similar in that you observe the wear and tear and perform
2 maintenance to extend their useful lives, however, it is a good practice to replace car
3 tires and groundwater wells before they fail catastrophically.

4 5 Florence-Graham System

6 7 **Converse Plant – Recoat Reservoir Exterior**

8
9 (Q) Is there another project you would like to address?

10 (A) Yes. Converse Plant – Recoat Reservoir Exterior in the Florence-Graham System,
11 Central Basin West CSA.²⁴⁷

12
13 (Q) How much did GSWC request for this project?

14 (A) \$467,800 in 2021.

15
16 (Q) Does Cal Advocates recommend that the Commission deny GSWC's request for the
17 Converse Plant – Recoat Reservoir Exterior in Florence-Graham System?

18 (A) Yes, Cal Advocates recommend that the Commission deny GSWC's request for the
19 project.

20
21 (Q) What is Cal Advocates' reason for recommending this project be disallowed?

22
23
24
25
26 ²⁴⁷ Hanford and Insko Operating District Capital Testimony at 142.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Cal Advocates states, "The Commission should deny the request because it is
2 unnecessary."²⁴⁸ Cal Advocates also claims, "GSWC's request is not supported by its
3 own inspection report."²⁴⁹
4

5 (Q) Does GSWC agree with Cal Advocates' assessment?

6 (A) No. As stated in the 2017 Dive/Corr. Inspection report, "Re-coating will most likely be
7 needed in an estimated three years."²⁵⁰ Four years has passed since the publishing of
8 the 2017 Dive/Corr. Inspection report. To protect the tank against further damage due
9 to a failed coating system, GSWC recommends the Commission support GSWC in
10 recoating the Converse tank as recommended by Dive/Corr.
11

12 Although the Dive/Corr report found that the exterior side shell was in relatively good
13 condition, it also found "The exterior roof coating is peeling... Re-coating will be most
14 likely be needed in an estimated in three years."²⁵¹ It is more cost effective and will
15 minimize service interruptions to recoat the entire exterior of the reservoir, including the
16 shell and the roof, at the same time.
17

18 (Q) If GSWC recoats the roof of the tank and the side shell of the tank at different times, will
19 this have a financial impact on GSWC and affect the reliability of water supply?
20
21

22
23 ²⁴⁸ Report and Recommendations on Region 2 Plant and Safety Issues at 29:5.

24 ²⁴⁹ *Id.* at 30:23 – 24.

25 ²⁵⁰ Hanford, Insko - Vol 7 Attachments CBE05 - CBW14, Attachment CBW05 at 8.

26 ²⁵¹ *Ibid.*
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Yes. In addition to disrupting water service multiple times, GSWC would incur
2 additional costs resulting from the contracting having to perform multiple mobilizations
3 (i.e. costs with moving equipment and materials onsite and costs for moving equipment
4 and materials offsite), costs for construction management would nearly double, we
5 would lose any cost savings associated with economies of scale for materials, and the
6 costs associated with GSWC crew having to isolate the tank multiple times.

7
8 (Q) Is the Converse tank a critical asset to maintaining reliable water supply to the Florence-
9 Graham system?

10 (A) Yes. Converse tank is a 0.5 MG reservoir which is a critical facility located in the center
11 of the Florence-Graham system and plays an important role in the water supply of the
12 system. Groundwater supply from Converse Well No's. 1 and 2 pump directly into the
13 Converse tank. The Converse Booster Station draws water from the Converse tank and
14 pumps it into the distribution system to meet customer demands. Without the Converse
15 tank, we lose access to the groundwater supply from Converse Well No's. 1 and 2. This
16 precludes us from utilizing the Converse Booster Station to help meet PHD and MDD +
17 FF. GSWC supports its recommendation to recoat the entire exterior of the tank (roof
18 and side shell) and perform improvements to the tank foundation steel retaining ring and
19 interior ladder as recommend in the Dive/Corr, Inc. Report.²⁵²

20
21 (Q) Did Cal Advocates express any other concerns with these projects?

22 (A) No.
23
24
25

26 ²⁵² Ibid.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Replacement Well Land Acquisition

(Q) Is there another project you would like to address?

(A) Yes. Replacement Well Land Acquisition in the Florence-Graham System, Central Basin West CSA.²⁵³

(Q) How much did GSWC request for this project?

(A) \$3,096,700 in 2021.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request to acquire land for the replacement of Converse Well No. 1, a groundwater well that supplies water to the Florence-Graham System?

(A) Yes, Cal Advocates recommend the Commission deny GSWC's request for purchasing land for the replacement of Converse Well No. 1.

(Q) On what basis does Cal Advocates make its recommendation?

(A) Cal Advocates presents two reasons the well replacement should be denied:

1) "Age of a well should not be the only reason for replacing a fully operational well."²⁵⁴

2) "The Florence-Graham System can meet the system demand without the Converse Well No. 1's capacity."²⁵⁵

²⁵³ Hanford and Insko Operating District Capital Testimony at 143.

²⁵⁴ Report and Recommendations on Region 2 Plant and Safety Issues at 31:5 - 6.

²⁵⁵ Report and Recommendations on Region 2 Plant and Safety Issues at 31:7 - 8.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Would you like to discuss Reason 1 presented by Cal Advocates?

(A) Yes, Reason 1 presented by Cal Advocates states the “Age of a well is not sufficient justification for replacing the well when it is fully operational.”²⁵⁶ Cal Advocates fails to acknowledge that the Wood Rodgers recommendation is based on more than the age of the well. Wood Rodgers states Converse Well No. 1 produced 1,180 gpm back in 1930.²⁵⁷ Today, Converse Well No. 1 produces 450 gpm²⁵⁸, this equates to a greater than 60% decline in water production. Wood Rodgers goes on to state “Historical data indicate that the well accumulated approximately 152 feet of sediment fill between 1930 and 2009, covering approximately 86 feet of perforations [well screen].²⁵⁹ Wood Rodgers continues with “Wood Rodgers reviewed the well video survey conducted on November 2, 2007. The video inspection confirmed casing seam separation and rivet failure at a depth of approximately 26 feet. The video inspection also confirmed statements made in the 1989 photo log summary report (by McCall Brothers) that the casing appears to have poor alignment. The well screen throughout the perforated intervals has significant encrustation and plugging. An October 14, 2009, video summary report (logged by Water Well Redevelopers) further confirms poor alignment, casing deterioration, and plugging of the Mill’s knife perforations [well screen].”²⁶⁰

²⁵⁶ Report and Recommendations on Region 2 Plant and Safety Issues at 31:5 - 6.

²⁵⁷ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW06, at 4.

²⁵⁸ Florence-Graham Master Plan, Table 5-5.

²⁵⁹ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW06 at 4.

²⁶⁰ *Ibid.*

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Clearly, Wood Rodgers' determination was based on more than age alone as suggested by Cal Advocates, and Cal Advocates failed to provide any independent expert analysis that refutes the findings of the Wood Rodgers report

(Q) Do you agree with Cal Advocates claim the supply from Converse Well No. 1 is not critical²⁶¹?

(A) No. Cal Advocates once again ignores the cost of water in its analysis and conclusion. Through the summation of the groundwater capacities indicated in Table 5-5 of the Florence-Graham Master Plan, the total groundwater supply is 4,600 gpm. Table 5-7 of the same Master Plan indicates the MDD for the Florence-Graham system is 4,766 gpm. It is clear that GSWC cannot meet MDD on groundwater alone and with Converse Well No. 1 in service, GSWC must still purchase 176 gpm water from MWD to meet this demand. Under Cal Advocates' recommendation, GSWC should allow Converse Well No. 1 to fail and not replace the 450 gpm of lost groundwater production. This would require GSWC to purchase 626 gpm during MDD events. With the cost for producing groundwater being approximately \$486 per acre-foot and the cost to purchase water from MWD being \$1,268 per acre-foot, pumping groundwater is 40-percent of the cost of purchasing groundwater. Further discussion on results of our cost-benefit analysis is presented below.

(Q) Do you agree with Cal Advocates statement that GSWC could locate a replacement well for Converse Well No. 1 on the existing plant site?

²⁶¹ Report and Recommendations on Region 2 plant and Safety Issues at 31:22 - 23.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) No. The dimensions of the existing Converse site measure 100-feet by 146-feet (0.33
2 Acre). The plant site is currently encumbered by a 0.5 MG steel water tank, a granular
3 activated charcoal treatment system, two groundwater wells, a booster pump station,
4 electrical equipment and controls, and a chemical fee building. In addition to these
5 above ground facilities, there are number underground pipelines, conduits, chemical
6 feed lines, and power lines. Based on the physical constraints of the site and the
7 requirements of DDW for GSWC to maintain a control zone with a 50-foot radius of
8 control around a new well²⁶², there simply is not room to accommodate another well on
9 the Converse Plant site.

10
11 (Q) Would you like to respond to the second reason Cal Advocates presents to support its
12 recommendation for the Commission to deny the acquisition of land for the replacement
13 of Converse Well No. 1?

14 (A) Yes, Cal Advocates second reason on which it recommends denial of this project is
15 "Florence-Graham System has enough supply capacity without the Converse Well No.
16 1"²⁶³.

17
18 (Q) Do you agree with Cal Advocates findings?

19 (A) No, Cal Advocates once again chooses to ignore the costs savings associated with
20 drilling and operating a groundwater well in lieu of purchasing water from MWD.
21 Although Cal Advocates is correct in stating "Even without the capacity of the Converse
22 Well No. 1 (450 gpm), the system has enough supply to meet all demand modes
23

24 ²⁶² California Waterworks Standards, §64560(a)(2)

25 ²⁶³ Report and Recommendations on Region 2 Plant and Safety Issues at 32:1 - 2.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 because the system has supply surplus that exceed 450 gpm in all demand
2 scenarios”²⁶⁴, they are ignoring the cost of water supply that must be borne by the
3 ratepayer. GSWC demonstrates the cost effectiveness for drilling and operating a
4 replacement well (i.e. Converse Well No. 3) in its cost-benefit analysis. The net present
5 value (NPV) for drilling and operating a replacement well, including cost for purchasing
6 land, is \$21.1M over a project life of 45 years with pumping water cost is approximately
7 \$486 per AF. Conversely, the costs associated with purchasing the same quantity of
8 water from MWD over a life of 45 years is \$37.3M with purchased water cost of \$1,268
9 per AF.²⁶⁵

10
11 To conclude, although GSWC has water supply available to meet MDD, it is much more
12 cost effective to pump groundwater at \$486 per AF than it is to purchase an equivalent
13 quantity of water from MWD at \$1,268 per AF.

14
15 In summary, GSWC has provided overwhelming evidence that supports the purchase of
16 land for the replacement of Converse Well No. 1. The evidence includes a well
17 condition analysis by Wood Rodgers that concludes the well should be replaced, a cost-
18 benefit analysis indicating it is almost half the cost to construct and operate a
19 replacement groundwater well in lieu of purchasing MWD. Based on this evidence, the
20 Commission should support the purchase of land for the future replacement of
21 Converse Well No. 1 in this proceeding.

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25 ²⁶⁴ *Id.* at 33:2 – 4.

26 ²⁶⁵ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW07.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Did Cal Advocates express any other concerns with these projects?

2 (A) No.

3
4 **Miramonte Well No. 1 Replacement**

5
6 (Q) Is there another project you would like to address?

7 (A) Yes. Miramonte Well No. 1 Replacement in the Florence-Graham System, Central
8 Basin West CSA.²⁶⁶

9
10 (Q) How much did GSWC request for this project?

11 (A) \$6,036,600 in 2022.

12
13 (Q) Does Cal Advocates recommend that the Commission deny GSWC's request to replace
14 Miramonte Well No. 1, a groundwater well that supplies water to the Florence-Graham
15 System?

16 (A) Yes, Cal Advocates recommend the Commission deny GSWC's request for the
17 replacement of Miramonte Well No. 1.

18
19 (Q) On what basis does Cal Advocates make its recommendation?

20 (A) Cal Advocates presents three reasons the well replacement should be denied:

21 1) "Age of a well is not sufficient justification for replacing the well when it is fully
22 operational"²⁶⁷

23
24 _____
25 ²⁶⁶ Hanford and Insko Operating District Capital Testimony at 145.

26 ²⁶⁷ Report and Recommendations on Region 2 Plant and Safety Issues at 33:21 - 22.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

2) "The Florence-Graham System can meet the system demand without the Miramonte Well No. 1's capacity"²⁶⁸

3) "GSWC is planning to pump more water from the Miramonte Well No. 1"²⁶⁹

(Q) Would you like to discuss Reason 1 presented by Cal Advocates?

(A) Yes, Reason 1 presented by Cal Advocates states the "Age of a well is not sufficient justification for replacing the well when it is fully operational"²⁷⁰. The recommendation is based on more than the age of the well and Cal Advocates fails to acknowledge Wood Rodgers' qualifications and expertise when it comes to well assessments and recommendations. Wood Rodgers is an industry-leader in water well development and analysis, and their technical findings should be considered a valid basis for decision making in this GRC.

Moreover, Wood Rogers' conclusion is based on more than just the age of the well, including the following facts: "Historical data indicate the well has had excessive sand production since it was constructed. In 1955, due to failed attempts at bailing [removing accumulated sand] the well below a depth of 1,567 feet (likely due to casing failure at depth), Miramonte-1 was backfilled with sand up to 914 feet, with cement plugs between 1,300 and 1,310 feet and 904 and 914 feet."²⁷¹

²⁶⁸ *Id.* at 33:23 - 24.

²⁶⁹ *Id.* at 33:25 - 26.

²⁷⁰ *Id.* at 34:1 - 2.

²⁷¹ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW06 at 6.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Wood Rodgers continues “Since the early 1940s, at least six well rehabilitation events
2 have been reported for the Miramonte-1, including bailing of sediment fill, chemical
3 treatment, and mechanical vibratory explosives to remove encrustation and clear the
4 perforated intervals of biofouling.”²⁷²

5
6 Furthermore, Wood Rodgers states “In 1961, a hole in the well casing was observed,
7 and a 10-foot casing patch was swaged from 188 to 197 feet. Following the installation
8 of the casing patch, sand production was reported in the well discharge. In 1966, a
9 sand separator was installed Miramonte-1”²⁷³

10
11 Lastly, “Wood Rodgers reviewed the well video survey conducted on March 15, 2017.
12 The video inspection confirmed the casing patch from 188 to 198 feet, and a hole in the
13 casing was observed at 556 feet, which is within the perforated interval. The entire well
14 screen interval from 552 to 587 feet appeared to be worn, with open and enlarged
15 perforations.”²⁷⁴

16
17 Clearly, Wood Rodgers’ recommendation to replace Miramonte Well No. 1 is based on
18 more than age alone as suggested by Cal Advocates.
19
20
21
22

23 ²⁷² Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW06 at 6.

24 ²⁷³ Ibid.

25 ²⁷⁴ Ibid.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Do you agree with Cal Advocates' statement "GSWC has not substantiated its claim that the well exceeded its useful life with any repair or maintenance records."²⁷⁵

(A) No. Contrary to Cal Advocates' claim, Wood Rodgers' report on Miramonte Well No. 1 describes the major maintenance work performed on this well and discusses the water quality. With the most telling quote "The Miramonte- 1 has been modified and rehabilitated at least six times throughout its life to remove sediment fill and clean the well structure. Any additional rehabilitation efforts will likely have low chances of success at restoring well yield. Additionally, sand production will not be remediated with chemical or mechanical treatment due to the cable tool construction of this well."²⁷⁶ To state "GSWC has not substantiated its claim that the well exceeded its useful life with any repair or maintenance records..."²⁷⁷ is unfounded and without merit.

(Q) Would you like to respond to the second reason Cal Advocates presents to support its recommendation for the Commission to deny the replacement of Miramonte Well No. 1?

(A) Yes, Cal Advocates' second reason on which it recommends denial of this project is "The Florence-Graham System can meet the system demand without the Miramonte Well No. 1's capacity"²⁷⁸.

(Q) Do you agree with Cal Advocates' findings?

²⁷⁵ Report and Recommendations on Region 2 Plant and Safety Issues at 34:12 - 14.

²⁷⁶ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW06 at 7.

²⁷⁷ Report and Recommendations on Region 2 Plant and Safety Issues at 34:12 - 14.

²⁷⁸ *Id.* at 34:16 - 17.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) No, Cal Advocates once again chooses to ignore the costs savings associated with drilling and operating a groundwater well in lieu of purchasing water from MWD. Although Cal Advocates is correct in stating “Nonetheless, the Florence-Graham system has enough supply capacity (14,267 gpm) to meet demands even without the supply from the Miramonte Well No. 1 (650 gpm)”²⁷⁹, they are ignoring the cost of water supply that must be borne by the ratepayer. GSWC demonstrates the cost effectiveness for drilling and operating a replacement well (i.e. Miramonte Well No. 4) in its cost-benefit analysis. The net present value (NPV) for drilling and operating a replacement well is \$17.5M over a project life of 45 years with a pumping water cost of approximately \$486 per AF. Conversely, the costs associated with purchasing the same quantity of water from MWD over a life of 45 years is \$29.8M with purchased water cost of \$1,268 per AF.²⁸⁰ Constructing a replacement well and pumping groundwater will result in a 40% savings over a 45 year life.

(Q) Do you agree with Cal Advocates’ claim that there is ample groundwater without Miramonte Well No. 1?

(A) No. From Tables 5-4 and 5-5 of the Florence-Graham Master Plan, the total MDD for Florence-Graham is 4,766 gpm and total groundwater supply is 4,600 gpm, respectively²⁸¹. Accordingly, the MDD exceeds total groundwater supply, including Miramonte Well No. 1. Thusly, Cal Advocates claim is not true. Further, if GSWC does not replace Miramonte Well No. 1, we will lose an additional 650 gpm of groundwater

²⁷⁹ Report and Recommendations on Region 2 Plant and Safety Issues at 35:9 and at 36:1 - 2.

²⁸⁰ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW08.

²⁸¹ Florence-Graham Master Plan

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 supply, thus reducing our available groundwater supply to 3,950 gpm. Under this
2 scenario, it is clear the MDD of 4,766 gpm far exceeds the available groundwater supply
3 if we lose Miramonte Well No. 1.

4
5 (Q) Is it cost effective to purchase MWD water to meet MDD?

6 (A) No. Although GSWC has water supply (groundwater plus purchased water) available to
7 meet MDD, the ratepayers will realize a 40 percent savings over a 45-year life for
8 constructing a replacement well and pumping groundwater at a cost of \$486 per AF
9 versus purchase an equivalent quantity of water from MWD at \$1,268 per AF over the
10 same span of time.

11
12 (Q) Would you like to respond to the third reason Cal Advocates presents to support its
13 recommendation for the Commission to deny the replacement of Miramonte Well No. 1?

14 (A) Yes, Cal Advocates' third reason on which it recommends denial of this project is
15 "GSWC is planning to pump more water from the Miramonte Well No. 1"²⁸² and then
16 concludes "It is counterintuitive to replace a well that just recently underwent 'significant'
17 improvements and is forecasted to produce more than before."²⁸³

18
19 (Q) Do you agree with Cal Advocates findings?

20 (A) No, Cal Advocates is making an 'apples to oranges' comparison by comparing the
21 results of changing out the well pump in Miramonte Well No. 1 with the physical
22 condition of Miramonte Well No. 1.

23
24
25 ²⁸² Report and Recommendations on Region 2 Plant and Safety Issues at 37:8.

26 ²⁸³ *Ibid.* at 37:23 - 24.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Can you provide some background and explain why Cal Advocates is off base with its reasoning and conclusion?

(A) Yes, in 2013, GSWC installed granular activated carbon well head treatment vessels (GAC contactors) at the Miramonte Plant to remove trichloroethylene (TCE) and other volatile organic compounds (VOCs) from the groundwater being extracted from the Miramonte wells. The addition of the GAC contactors increased the head loss (or discharge pressure) that the well pumps had to overcome, resulting in a reduction of production capacity (i.e. reduced pumping flow rate). The effluent from all three Miramonte groundwater wells was directed through the GAC contactors, thus reducing the pumping capacity of all three wells. GSWC mitigated the reduction in pumping capacity by replacing the well pumps with higher head (i.e. higher pressure) pumps to gain production capacity lost due to aging well pumps and the increased head loss caused by the GAC contactors. The well pumps and motors were changed out in approximately 2017 and resulted in the restoration of water production from the Miramonte wells as noted in the testimony prepared by Nanci Tran and cited by Cal Advocates.²⁸⁴

(Q) Does the restoration of the well capacity have any impact on the physical condition of the Miramonte Well No. 1?

(A) No, as concluded in the Wood Rodgers report²⁸⁵:

²⁸⁴ Report and Recommendations on Region 2 Plant and Safety Issues at 37:13 - 21.

²⁸⁵ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW06 at 7.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

- The Miramonte Well No. 1 has historically required treatment for removal of TEC, Carbon Tetrachloride, and other VOCs. The well structure does not appear to have adequate protection from anthropogenic contamination from the surface.
- The Miramonte Well No. 1 has been modified and rehabilitated at least six times throughout its life to remove sediment fill and clean the well structure. Any additional rehabilitation efforts will likely have low chances of success at restoring well yield. Additionally, sand production will not be remediated with chemical or mechanical treatment due to the cable tool construction of the well. Although a well liner may help reduce sand production, the well yield would be significantly reduced, and any well modification efforts will have high risk and costs associated due to the age and deteriorating condition of the well.
- The Miramonte Well No. 1 has reached the end of its useful service life. Well replacement is warranted and recommended.

(Q) Does replacing the pump in Miramonte Well No. 1 provide a long term solution to the condition of the well?

(A) No. Although we are going to get more water because we replaced the pump, it is only temporary because the well is going to fail.

In summary, GSWC has provided overwhelming evidence that supports the replacement of Miramonte Well No. 1. The evidence includes a well condition analysis by Wood Rodgers that concludes the well should be replaced, a cost-benefit analysis indicating it is approximately 40 percent less expensive to construct and operate a replacement groundwater well in lieu of purchasing MWD, and refutation of Cal Advocates' claim "It is counterintuitive to replace a well that just recently underwent

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

“significant” improvements and is forecasted to produce more than before.”²⁸⁶

Therefore, based on this empirical evidence presented, the Commission should adopt the replacement of Miramonte Well No. 1 in this proceeding.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) No.

Willowbrook System

Willowbrook Well No. 1 Replacement

(Q) Is there another project you would like to address?

(A) Yes. Willowbrook Well No. 1 Replacement in the Willowbrook System, Central Basin West CSA.²⁸⁷

(Q) How much did GSWC request for this project?

(A) \$4,109,100 in 2022.

(Q) Does Cal Advocates recommend that the Commission deny GSWC’s request to replace Willowbrook Well No. 1, a groundwater well that supplies water to the Willowbrook System?

²⁸⁶ Report and Recommendations on Region 2 Plant and Safety Issues at 37:23 - 24.

²⁸⁷ Hanford and Insco Operating District Capital Testimony at 150.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Yes, Cal Advocates recommend the Commission deny GSWC's request for replacing Willowbrook Well No. 1.

(Q) On what basis does Cal Advocates make its recommendation?

(A) Cal Advocates bases its recommendation on three reasons:

1) "Age of a well is not sufficient justification for replacing the well when it is fully operational."²⁸⁸

2) "Replacing the Willowbrook Well No. 1 does not add supply capacity to meet the demand."²⁸⁹

3) "GSWC's cost benefit analysis is flawed."²⁹⁰

(Q) Do you agree with Cal Advocates reasoning and, ultimately, its recommendation?

(A) No, all three reasons presented by Cal Advocates are fundamentally flawed and unfounded.

(Q) Would you like to discuss Reason No. 1 presented by Cal Advocates?

(A) Yes, Reason No. 1 presented by Cal Advocates claims "Age of a well is not sufficient justification for replacing the well when it is fully operational."²⁹¹ Cal Advocates fails to acknowledge Wood Rogers' qualifications and expertise when it comes to well assessments and recommendations. Wood Rodgers – an organization comprised of

²⁸⁸ Report and Recommendations on Region 2 Plant and Safety Issues at 38:10 – 11.

²⁸⁹ Ibid. at 38:12 – 13.

²⁹⁰ Ibid. at 38:14.

²⁹¹ Report and Recommendations on Region 2 Plant and Safety Issues at 38:10 – 11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Engineers, Professional Geologists and Certified Hydrogeologists – is an industry-
2 leader in water well development and analysis, and their technical findings should be
3 considered a valid basis for decision making in this GRC. The Wood Rodgers Well
4 Assessment & Recommendations report concluded that “the well has reached the end
5 of its useful service life. Well replacement is warranted and recommended.”²⁹² This
6 conclusion is based on the following facts: age of the well (91 years), well materials
7 used (mild steel), deteriorating condition, history of past rehabilitation, video survey, no
8 adequate protection from anthropogenic contamination from the surface.

9
10 (Q) Would you like to discuss Reason No. 2 presented by Cal Advocates?

11 (A) Yes, Cal Advocates claim “Replacing the Willowbrook Well No. 1 does not add supply
12 capacity to meet the demand.”²⁹³ GSWC in not proposing the Willowbrook Well No. 1
13 replacement well to add supply capacity to meet system demands, rather it is to
14 maintain reliable groundwater supply through well redundancy. The Willowbrook system
15 currently has two groundwater wells and one Metropolitan Water District (MWD)
16 purchase water connection. If GSWC is not prudent in replacing wells before they fail,
17 GSWC could be put into a situation where the Willowbrook system will be relying on one
18 groundwater well. Operational redundancy is critical in maintaining high quality reliable
19 water supply for our customers. Replacing Willowbrook Well No. 1 will allow GSWC the
20 operational flexibility to take one well offline for routine inspections or repairs without
21 impacting our customers.

22
23
24 ²⁹² Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW12 at 5.

25 ²⁹³ Report and Recommendations on Region 2 Plant and Safety Issues at 38:12 – 13.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Cal Advocates again incorrectly states, "As discussed several times in Chapter 1 of this report, there is no regulatory requirements pertaining to this MDD+FF demand."²⁹⁴ Please refer to GSWC rebuttal testimony for Elaine Plant – Storage, Booster Station, & Additional Equipment above wherein GSWC refutes Cal Advocates gross misinterpretation of water supply requirements. As supported in the aforementioned testimony, GSWC is in fact required to meet the maximum fire flow (FF) requirement in addition to maximum day demand (MDD). Thus, as shown in the 2019 Willowbrook Master Plan Table 5-7²⁹⁵, Willowbrook has a deficiency of 598 gpm under maximum day demand plus fire flow (MDD + FF) scenario. Under MDD+FF scenario, total available system supply is 5,260 gpm (1,800 gpm of purchased water and 3,460 gpm from boosters). The MDD + FF is 5,858 gpm (MDD of 858 gpm + FF of 5,000 gpm).

(Q) Will the replacement of Willowbrook Well No. 1 completely mitigate the deficiency in MDD + FF demand?

(A) No, it will not completely resolve the deficiency, but it addresses one of the two components necessary to fully mitigate the deficiency. The first component is to replace Willowbrook Well No. 1 to ensure a reliable source of groundwater is available. The second component is for GSWC to upgrade the booster capacity at the Willowbrook plant to match the total groundwater production rate. Once accomplished, the deficiency in being able to meet MDD + FF will be resolved.

²⁹⁴ Report and Recommendations on Region 2 Plant and Safety Issues at 40:1 – 3.

²⁹⁵ Willowbrook Master Plan Section 5.3.4.1 Table 5-7

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) Does GSWC have plans to upgrade the Willowbrook Booster Station in a subsequent GRC to address the MDD+FF deficiency?

(A) Yes. Following the replacement of Willowbrook Well No. 1 under this proceeding, GSWC will seek funding to upgrade the Willowbrook Booster Station in its 2023 GRC.

(Q) Does Cal Advocates suggest GSWC disregard our contractual obligation with Central Basin MWD?

(A) Yes, Cal Advocates states “that the 1,800 gpm [for CBMWD purchase water connection] is a “contracted” capacity and GSWC can receive more from the purchase water connection if necessary, at a higher cost.”²⁹⁶ However, Cal Advocates does not accurately represent GSWC response to Cal Advocates data request BYU-005, Q.2.c. Specifically, GSWC’s response stated “It is contractually limited to 1,800 gpm. GSWC can achieve more flow, but would be subject to high flow penalties.”²⁹⁷ It appears Cal Advocates is attempting to diminish GSWC’s contractual obligation with CBMWD in an effort to support its position. Regardless, Cal Advocates is suggesting we exceed our contractual obligation to avoid constructing our own facilities to meet the water demand scenarios for the Willowbrook System.

(Q) Would you like to discuss Reason No. 3 presented by Cal Advocates?

(A) Yes, Cal Advocates claim that “GSWC’s cost benefit analysis is flawed.”²⁹⁸ Cal Advocates also states that “the replacement well does not increase supply capacity

²⁹⁶ Report and Recommendations on Region 2 Plant and Safety Issues at 39:14 and at 40:1.

²⁹⁷ *Id.* at Attachment 2-3: GSWC Response to Data Request BYU-005, Q.2.c.

²⁹⁸ Report and Recommendations on Region 2 Plant and Safety Issues at 38:14.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 since it only increases supply to the tank. Supply capacity is dependent on booster
2 capacity from the tank to the system. Booster capacity is not changing and as such the
3 Willowbrook system will have to purchase the same amount of water (if the system
4 needs to purchase any water).²⁹⁹ Cal Advocates' statement is incorrect. Although the
5 distribution of water is dependent on booster capacity, there is little correlation with
6 supply capacity. As indicated above, GSWC plans to increase the Willowbrook Booster
7 Station capacity in the 2023 GRC. The Willowbrook Booster Station improvement will
8 allow GSWC to meet the required MDD+FF demand of 5,858 with a combination of
9 groundwater supply booster from the tank and purchased water.

10
11 The cost benefit analysis provides a useful gauge of how expensive purchased water is
12 as compared to producing groundwater. If GSWC was to not replace Willowbrook Well
13 No. 1 as Cal Advocates recommends, the only water source is Willowbrook Well No. 3
14 and the MWD purchased water. If GSWC was to lose or take Willowbrook Well No. 3
15 offline for inspections, repairs, or water quality concerns, the Willowbrook system will be
16 completely supplied by purchased water. Replacing Willowbrook Well No. 1 will provide
17 redundancy and resiliency to the Willowbrook system.

18
19 As stated in GSWC's Operating District Capital Testimony "Pumping and treating water
20 from the groundwater basin is more cost effective than purchasing water from MWD
21 [Metropolitan Water District] (the unit cost of for purchasing water in the Willowbrook
22 System is \$1,268 per acre-foot (AF), while the unit cost of groundwater in the System
23 (comprised of pump tax and energy and operating expenses) is approximately

24
25 ²⁹⁹ Ibid. at 41:16 – 18 and at 42:1 – 2.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

\$448/AF).”³⁰⁰ GSWC provided a cost-benefit analysis in its original testimony that demonstrates it is more cost effective to construct and operate a groundwater well in the Willowbrook System than it is to purchase potable water from MWD. The cost-benefit analysis concludes the net present value (NPV) for constructing and operating a replacement well that produces 1,200 gpm 45 years is \$20 million. Conversely, purchasing potable water from MWD at an equivalent rate over the same period of time (1,200 gpm over 45 years) has a NPV of \$44.7 million.³⁰¹

In sum, it is far more economical and advantageous to our ratepayers for GSWC to construct and operate a replacement well for Willowbrook Well No. 1 to reduce water supply costs and to provide highly reliable water supply.

(Q) What did Wood Rodgers conclude in its well assessment report?

(A) Wood Rodgers concludes “Willowbrook-1 has had at least two previous rehabilitations over its life span. Given the age (91 years), well materials used (mild steel), and current operating condition it is likely that future well rehabilitation events will have a low chance of success at increasing capacity for this well. Based on the age, this well is at the end of its service life, and will likely need to be replaced.”³⁰²

³⁰⁰ Hanford and Inco Operating District Capital Testimony at 151:5 - 9.

³⁰¹ Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW11 at 1.

³⁰² Hanford, Insko – Vol 7 Attachments CBE05 – CBW14, Attachment CBW12 at 5.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Is the Wood Rodgers' report prepared by or under the guidance of Professional
2 Geologists and Certified Hydrogeologists registered within, and licensed by, the State of
3 California?

4 (A) Yes, the Wood Rodgers report was authored and sealed by Professional Geologists
5 and Certified Hydrogeologists.
6

7 (Q) Did Cal Advocates express any other concerns with these projects?

8 (A) Yes. Cal Advocates claims, "there is no regulatory requirements pertaining to this
9 MDD+FF demand. GSWC defines MDD+FF as the 'amount of water required to fight a
10 fire in addition to MDD.' However, the California Waterworks Standards only requires
11 water systems to meet MDD and PHD. The fire flow requirements are from the local fire
12 departments. So, the fire flow and the MDD should be analyzed separately."³⁰³
13

14 (Q) Please explain why you include FF demand during MDD.

15 (A) Please refer to our rebuttal testimony for Elaine Plant New Tank and Booster Station
16 above.
17

18 (Q) Did Cal Advocates express any other concerns with these projects?

19 (A) No.
20
21
22
23
24
25

26 ³⁰³ Report and Recommendations on Region 2 Plant and Safety Issues at 40:2 – 5.
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Southwest System

Chadron Plant – Upgrade Booster Station

(Q) Is there another project you would like to address?

(A) Yes. Chadron Plant – Upgrade Booster Station in the Southwest System, Southwest CSA.³⁰⁴

(Q) How much did GSWC request for this project?

(A) \$2,211,300 in 2023.

(Q) Does Cal Advocates recommend that the Commission deny GSWC's request for the Chadron Plant – Upgrade Booster Station in the Southwest System?

(A) Yes, Cal Advocates recommends that the Commission disallow the project.

(Q) What is Cal Advocates' reason for recommending this project be denied?

(A) Cal Advocates recommended the Commission should deny the request for the following three reasons.

- "Parts can be custom made for a repair"³⁰⁵
- Chadron Boosters A and B with "excellent" pumping efficiency should not be replaced at this time.

³⁰⁴ Hanford and Insko Operating District Capital Testimony at 172.

³⁰⁵ Report and Recommendations on Region 2 Plant and Safety Issues at 44:13 – 14.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

- Despite the age of the equipment, GSWC has not demonstrated that it is not in working condition or unsafe to warrant its replacement.

(Q) Does GSWC take exception to Cal Advocates recommendation and their justifications they provided to support their position?

(A) Yes, GSWC disagrees with Cal Advocates' assessment. Cal Advocates recommendation that parts can be custom made for a repair is not an acceptable method to repair or replace broken pump components for a potable water system. As required by California Waterworks Standards and GO 103-A, we are required to provide and maintain reliable water service at all times. "The CPUC's objectives in regulating water utilities rest on four key principles: Safe, high quality water; Highly reliable water supplies; Efficient use of water; and Reasonable rates and viable utilities"³⁰⁶ For Cal Advocates to suggest GSWC should allow a pump to fail and then find a machine shop capable of machining replacement parts is absurd and unreasonable. It would take several weeks for GSWC to have a machine shop to custom build replacement parts to for pump and pumping equipment failures. This is not acceptable as GSWC is responsible for maintaining water supply to meet customer demands and to provide water for fighting fires. It is unreasonable to expect GSWC to custom manufacture parts for broken equipment. The obsolete pumps and motors should be replaced so GSWC can readily have access to parts and equipment to maintain and provide highly reliable water service. Cal Advocates' statement that the current efficiencies of the pumps is excellent has no bearing on the reliability of the pumps. The fact is, pumps fail and GSWC must be able to quickly and cost effectively replace pump components.

³⁰⁶ CPUC Water Action Plan, October 2010 at 2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1
2 In regard to the motor control center (MCC), the industry life expectancy for industrial -
3 grade electrical systems in buildings is generally 20 to 30 years. The MCC and other
4 electrical equipment in the Chadron booster building were installed in 1963 (58 years
5 ago). The MCC and other electrical equipment has served well beyond its service life
6 and it is only a matter of time before this equipment fails. Another concern is
7 replacement parts for 1960's era electrical equipment is no longer manufactured and
8 GSWC is forced to scavenge needed parts from equipment that has been removed from
9 service and upgraded.

10
11 The Chadron booster pump station (BPS), which includes 3 boosters and a 1.5 MG
12 reservoir, is critical infrastructure for the reliable supply of potable water and fire
13 protection. The manufacture date for the service panel that controls the Chadron
14 Booster Station is dated 1963 and utilizes the original 800-amp breaker. If this breaker
15 fails, GSWC will not be able to replace this outdated breaker and, as a result, the
16 Chadron plant will be offline until GSWC could replace the entire MCC. This would
17 negatively affect the water supply of the Southwest system for a period of at least four
18 months. Further, the booster panels are fed from wires that are connected to the load
19 side of the 800 main breaker, then across through a gutter with splice taps along the
20 way for each of the boosters. This type of electrical installation is outdated and needs to
21 be upgraded along with the MCC and other electrical equipment.

22
23 (Q) Did Cal Advocates express any other concerns with these projects?

24 (A) No.
25
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Region 3

Los Alamitos CSA (West Orange System)

Ball Plant

(Q) Is there another project you would like to address?

(A) Yes. The Ball Plant, Fe and Mn Removal System and Ball Plant, Land Acquisition in the West Orange System, Los Alamitos CSA.³⁰⁷

(Q) How much did GSWC request for these projects?

(A) For the Ball Plant, Fe and Mn Removal System: \$2,792,600 in 2023 and Ball Plant, Land Acquisition: \$2,052,200 in 2023.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow these projects.

(Q) What is Cal Advocates' reason for recommending that these projects be disallowed?

(A) Cal Advocates states, "The Commission should not rely on complaint totals to justify installing treatment because the totals include complaints not caused by water from Ball Well No. 1. First, customers outside of Ball Well No. 1's service area make a significant portion of the complaints."³⁰⁸

³⁰⁷ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, at 191.

³⁰⁸ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 15:8-11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Does GSWC agree with Cal Advocates' assessment?

2 (A) No. Because a significant number of customers outside of the range of Ball Well No.
3 1 also have concerns with water color is no basis to deny solving the problem for the
4 significant number of customers that have water color concerns caused by Ball Road
5 Well No. 1. GSWC's main goal as a water purveyor is to serve clean drinking water
6 and maintain good relations with all of our customers. GSWC takes these complaints
7 very seriously and is trying to reduce the frequency of these complaints. This project
8 will not only reduce colored water complaints but also reduce the frequency of the
9 Unidirectional Flushing ("UDF") that is required in order to resolve colored water
10 events, even though periodic system flushing will still be required as a part of routine
11 system maintenance. UDF is effective in removing biofilms and precipitates from our
12 distribution mains, however UDF is a wasteful (i.e. potable water is used to flush the
13 distribution mains and discharged into storm drains) and labor-intensive process that
14 requires significant advanced planning and preparation. Given the size of the West
15 Orange System, UDF cannot be deemed as a permanent solution for reacting to
16 episodes of discolored water, caused by iron and manganese.

17
18 Customer complaints will be reduced with the installation of a manganese treatment
19 system for the Ball Road Well No. 1. Table 2-4 of the Cal Advocates report list the
20 number of water quality complaints from 2017 to 2019.³⁰⁹ It demonstrates that the
21 majority of the discolored water complaints each year have been due to colored water
22 issues in the vicinity of Ball Road Well No. 1. GSWC's goal is to mitigate these
23 problems with the proposed treatment system. According to Cal Advocates' Table 2-
24

25 ³⁰⁹ *Id.* at 15.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 4: Ball Well No. 1 Service Area Discolored Water Complaints, the percentage of in-
2 area complaints in 2017, 2018, and 2019 are 42%, 57%, and 72% respectively.³¹⁰
3 These percentages indicate the total discolored water complaints in the West Orange
4 system, which are at least roughly half (or 2/3 in the case of 2019) in the vicinity of Ball
5 Road Well #1.
6

7 (Q) Did Cal Advocates express any other concerns with these projects?

8 (A) Yes. Cal Advocates argues that because Ball Road Well No. 1 does not have a
9 manganese Secondary Maximum Contaminant Level ("SMCL") violation, this well
10 does not need to be treated for manganese. Furthermore, Cal Advocates states that
11 the Water Research Foundation's report does not support installing treatment at Ball
12 Road Well No. 1.³¹¹
13

14 (Q) Does GSWC agree with Cal Advocates' assessment?

15 (A) No. GSWC is aware that Ball Road Well No. 1's manganese concentrations do not
16 exceed the SMCL, and GSWC does not claim that they do. It is the large number of
17 water quality complaints within the West Orange County System that is driving the
18 need for manganese treatment.
19

20 The manganese concentration in the water samples of Ball Road Well No. 1 from
21 2016 to 2019 range from 0.014 mg/L to 0.031 mg/L. The average manganese
22 concentration at Ball Road Well No. 1 is 0.018 mg/L. As explained in GSWC's Capital
23

24
25 ³¹⁰ Calculated as 20/48 in 2017, 13/23 in 2018 and 31/43 in 2020.

26 ³¹¹ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 13-14.
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Testimony, the 2013 Water Research Foundation (“WRF”) study states that utilities
2 should set a target manganese concentration in finished water (i.e. water that has
3 passed through all the processes in the onsite water treatment process and is ready to
4 be delivered to consumers of 0.015 mg/L to minimize manganese precipitation in the
5 distribution system.³¹² The purpose of GSWC citing WRF’s report is not to compare it
6 with the SMCL, but to show that manganese concentrations lower than the SMCL can
7 still cause manganese to precipitate in the distribution system and cause colored
8 water complaints from customers.

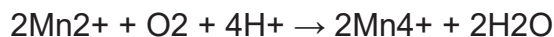
9
10 Manganese that precipitates in the distribution system can settle and collect into
11 deposits in distribution pipelines. This collection of precipitated manganese in
12 distribution lines over time is referred to as “loading.” These manganese deposits can
13 later be mobilized by normal variations in water flow, which can in turn cause colored
14 water events that drive customer complaints. Manganese precipitates in the
15 distribution system even at levels below the SMCL.

16
17 Cal Advocates’ focus on the SMCL for manganese at source points suggests that Cal
18 Advocates does not fully understand the mechanisms that drive manganese
19 precipitation and loading. Because precipitated manganese can load the distribution
20 system over time, the total mass balance of manganese being introduced into the
21 distribution system therefore should be considered.

22
23 ³¹² Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony, Volume 9 of 10
24 (Attachments FH02 – P02), Attachment LA04, Water Research Foundation, *Guidance for the Treatment of*
25 *Manganese* (2013) at 24.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

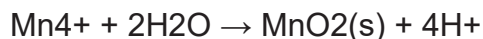
Assuming Ball Road Well No. 1 is running at full capacity (840 gpm) with an average concentration of 0.018 mg/L, Ball Road Well No. 1 will be loading the system with 66 pounds per year of manganese in a dissolved state (Mn²⁺).³¹³ Dissolved manganese is susceptible to precipitation into MnO₂(s) when drawn to the surface and exposed to oxygen, or when the water is dosed with chlorine as part of routine disinfection processes, through the following chemical process:



Or



The oxidized manganese then precipitates to MnO₂(s) through the following process:



As evidenced by colored water complaints the above-described chemical process is occurring in the distribution systems in the vicinity of Ball Road Well No. 1, causing manganese precipitation and loading. Eliminating the source of manganese entering the distribution system would prevent this type of precipitation and accumulation.

While the manganese SMCL does not apply directly to the distribution system, water suppliers are required to determine physical water quality in the distribution system.³¹⁴

³¹³ EXCEL file "Mn loading rate_Ball Road Well", attached hereto as **Attachment 9**.

³¹⁴ California Code of Regulations, Title 22, §64449.5.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Physical water quality is determined by monitoring color, odor, and turbidity.

Particulate manganese can and has caused color and turbidity exceedances in the distribution system.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) Yes. Cal Advocates states, "To address discolored water complaints, GSWC should improve its flushing program instead of installing manganese treatment."³¹⁵

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) No. GSWC believes in taking a proactive approach by removing manganese at its source when addressing discolored water complaints. The reactive approach of distribution flushing when it comes to complaints directly impacts customers when there are disturbances in mains. Customers are impacted during the flushing events as flushed material might end up in customer's taps. Flushing the distribution system is a primarily maintenance related activity used as a preventative step to maintain high quality drinking water. It does not solve the fundamental issue of removing manganese from the source water.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) Yes. Cal Advocates states, "GSWC has a plan to implement superior flushing that will conserve water compared to conventional flushing."³¹⁶ Furthermore, Cal Advocates claims NO-DES flushing is "superior to conventional flushing as it removes sediments

³¹⁵ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 16:3-4.

³¹⁶ *Id.* at 16:9-10.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

and particulate matter during the flushing operation and conserves water.”³¹⁷

Additionally, Cal Advocates states, “According to NO-DES, Inc., its flushing can remove settled particulates, iron, and manganese. NO-DES, Inc. also reports specific instances of iron and manganese removal. Therefore, annual NO-DES flushing by itself is an alternative to address predicated manganese.”³¹⁸

(Q) Does GSWC agree with Cal Advocates’ assessment?

(A) No. Due to system constraints: such as fire hydrant and gate valve locations, and achieving effective scouring velocities in pipe diameters greater than 8-inches, NO-DES is not effective for all pipelines within the West Orange system. On the other hand, UDF is used for the removal of sediments, legacy deposits and biofilm independent of pipeline diameter. Therefore, UDF, in conjunction with NO-DES, is the current flushing technique for effectively cleaning our distribution system.

Due to the size of the West Orange system, GSWC is continually flushing the system throughout the year so that we can reduce the number of customer complaints. Our efforts to flush the system has helped manage customer complaints, but even with the implementation of UDF and NO-DES GSWC is still receiving colored water complaints. UDF and NO-DES flushing are reactionary methods to mitigate colored water complaints. GSWC’s should proactively remediate colored water complaints by reducing the manganese loading from the source (i.e., Ball Road Well No. 1).

³¹⁷ *Id.* at 16:11-13.

³¹⁸ *Id.* at 16:20-23.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (Q) Did Cal Advocates express any other concerns with these projects?

2 (A) Yes. Cal Advocates states, “In 2016, the peak year for complaints, GSWC noted that
3 discolored water was caused by manganese treatment equipment failure at the
4 Bloomfield Plant.”³¹⁹ Cal Advocates also states, “In 2019, GSWC’s complaint
5 summary pointed to construction work as contributing to the year’s total.”³²⁰
6

7 (Q) Does GSWC agree with Cal Advocates’ assessment?

8 (A) No, the 2016 Bloomfield Plant event did cause a spike in colored water complaints,
9 but this was an isolated event and was corrected by the immediate flushing of the
10 distribution system in close proximity of the Bloomfield Plant. In addition, the
11 Bloomfield Iron and Manganese treatment facility has been repaired and it is
12 effectively removing manganese from groundwater production at the Bloomfield Plant.
13 With the manganese treatment system in place, we are no longer pumping
14 manganese laden water into the system. Even with our efforts to flush the system,
15 GSWC is still receiving colored water complaints as seen in Table 2-4³²¹ indicating that
16 there is another source (i.e., Ball Road Well No. 1) in the system that is contributing to
17 colored water complaints.
18

19 Cal Advocates analysis of 2019 colored water customer complaints is incorrect.
20 Construction work (i.e., new development projects and pipeline replacement projects)
21 is normal business throughout the West Orange system. Typically, construction
22

23
24 ³¹⁹ *Id.* at 15:13-15.

25 ³²⁰ *Id.* at 16:1-2.

26 ³²¹ *Id.* at 15.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 projects will need access to a fire hydrant to use water as a dust control palliative.
2 When constructions sites use a fire hydrant connection there is the potential that the
3 normal flow of water will be altered causing a disturbance in the flow patterns in the
4 distribution mains resulting in biofilm and manganese to become mobilized and in turn
5 causing colored water complaints. Similarly, when GSWC is replacing distribution
6 mains in the West Orange system, GSWC will need to isolate sections of pipes with
7 valve manipulation, which has the potential to change the normal flow of water
8 causing a disturbance in the distribution mains. Both types of construction work is
9 common in the West Orange system and can cause the mobilization of manganese in
10 the distribution system resulting in colored water customer complaints. GSWC cannot
11 stop these types of projects from occurring. Rather, GSWC proposes to install iron
12 and manganese treatment at Ball Road Well No. 1 to control the amount of these
13 elements that would be entering the West Orange system eliminating the colored
14 water complaints due to construction work.

16 Ball Plant Land Acquisition

18 (Q) Did Cal Advocates express any other concerns with these projects?

19 (A) Yes. Cal Advocates is recommending that the Commission deny funding for Ball
20 Plant, Land Acquisition.

22 (Q) Does GSWC agree with Cal Advocates' assessment?

23 (A) Yes. GSWC's original intent was to purchase land adjacent to the Ball Road plant site
24 to allow construction of iron and manganese treatment without impeding the open
25 space remaining on the Ball Road plant site. GSWC has since prepared a modified
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

design to accommodate the iron and manganese treatment system to fit on the existing Ball Road Plant site. This comes with a risk that if Ball Road Well No. 1 ever becomes non-operational there will be no more space on the existing plant site to drill a replacement well. Excluding the land acquisition will reduce the overall project cost by \$2,052,200.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) Yes. Cal Advocates states, "Even after considering labor inflation and water cost escalation, GSWC's high estimate for flushing the service area over 20 years is under \$2,000,000. Over 20 years, however, the cost to ratepayers for the Fe and Mn removal system would be over \$10,000,000."³²²

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) No. As indicated in the rebuttal above, GSWC has modified this project to fit on the existing plant site and will not need to spend \$2,052,200 to purchase land. Excluding the cost to purchase land will lower the cost to ratepayers for the iron and manganese removal system to about \$6,000,000 over 20 years. Although the overall cost for the iron and manganese removal system is more expensive than flushing, the benefit of installing is that GSWC will be able to control the amount of iron and manganese we are introducing into the distribution system and reducing our reliance of UDF & NO-DES to correct colored water events. Flushing the system is indeed cheaper, but is a reactionary method in controlling colored water events and on top of that flushing is wasteful (i.e. potable water is used to flush the distribution mains and discharged into

³²² *Id.* at 17:15-18.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 storm drains). In the state of California, GSWC must always be diligent in conserving
2 water, especially as we enter another drought. On April 21, 2021, Governor Newsom
3 stated "California is facing the familiar reality of drought conditions, and we know the
4 importance of acting early to anticipate and mitigate the most severe impacts where
5 possible".³²³

6
7 Even with continual flushing of the system, GSWC is still receiving customer colored
8 water complaints, which we cannot deem as a permanent solution. Rather, GSWC
9 proposes to install iron and manganese removal system at Ball Road Well No. 1 to
10 stop the colored water complaints at the source. Once installed the treatment system
11 will reduce customer colored water complaints and reduce the amount of times GSWC
12 will need to implement UDF & NO-DES.

13
14 (Q) Did Cal Advocates express any other concerns with these projects?

15 (A) No.

16 17 **Placentia CSA (Cowan Heights System)**

18 19 **Clearview Reservoir Replacements**

20
21 (Q) Is there another project you would like to address?

22 (A) Yes. The Clearview, Reservoir Replacements in the Cowan Heights System,
23

24
25 ³²³ <https://www.gov.ca.gov/2021/04/21/governor-newsom-takes-action-to-respond-to-drought-conditions/>,

26 published April 21, 2021, captured April 27, 2021.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 Placentia CSA.³²⁴

2
3 (Q) How much did GSWC request for this project?

4 (A) \$3,804,300 in 2023.

5
6 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

7 (A) Yes. Cal Advocates recommends that the Commission adjust funding for this project.

8
9 (Q) What is Cal Advocates' reason for recommending that this project's budget be
10 adjusted?

11 (A) Cal Advocates states, "The Commission should adjust funding in rates for the
12 Clearview Reservoir Replacements because a single-tank design is more cost-
13 effective."³²⁵ Furthermore, Cal Advocates states, "The Commission should not
14 authorize funding for a more expensive project because GSWC believes the OCPC
15 will deny a cost-effective project."³²⁶

16
17 (Q) Does GSWC agree with Cal Advocates' assessment?

18 (A) No. Cal Advocates falsely claims that GSWC is proposing a more expensive design
19 merely because we believe that the Orange County Planning Commission ("OCPC")
20 will deny a lower cost project. Contrary to Cal Advocates' statement, GSWC is
21 proposing a dual reservoir design to mitigate the visual disturbance that would be
22

23
24 ³²⁴ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 202.

25 ³²⁵ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 21:6-7.

26 ³²⁶ *Id.* at 22:13-14.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 imposed on the homes that are located adjacent to our plant site. Recognizing that
2 our neighbors are sensitive to visual disturbance, the existing Clearview reservoirs
3 were constructed of reinforced concrete and partially buried to reduce overall height,
4 which aids in screening the visual impacts of the Clearview plant site. In the proposed
5 project, it is more cost effective to construct the new reservoirs above ground. The
6 cost to construct a reservoir partially buried could cost about double the amount that of
7 an above ground reservoir. This is because instead of constructing the reservoirs out
8 of steel, GSWC would need to construct the partially buried reservoirs out of
9 reinforced concrete, which has a greater unit cost to construct and require additional
10 costs to excavate the site and haul off the excavated material.

11
12 (Q) What is the height difference if GSWC were to construct a single welded steel tank in
13 lieu of two welded steel tanks?

14 (A) Due to site constraints (i.e. dimensions of the parcel), GSWC is limited to a maximum
15 tank diameter of 42-feet. Therefore, to achieve the desired storage volume of 200,000
16 gallons in a single 42-foot diameter tank, the working water level of the tank would be
17 20-feet with an overall tank height of 30-feet. With two 42-foot diameter tanks, the
18 working water level is 10-feet with an overall tank height of 20-feet. The additional
19 height in the tanks is due to AWWA D-100 seismic requirements. Please refer to
20 **Attachment 10** (Clearview Tank Elevations) for a schematic of tank dimensions.³²⁷

21
22 (Q) How will two 20-feet tall tanks and a single 30-feet tall tank 'fit in' with the existing
23 residential structures?

24
25
26 ³²⁷ Clearview Tanks Elevations.pdf, attached hereto as **Attachment 10**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Typical single family residential homes (single story and two story) have a maximum
2 height of 16- to 24-feet. Constructing two 42-foot diameter tanks with a height of 20-
3 feet will not exceed the typical roof height of neighboring residential homes. On the
4 other hand, a single 42-foot diameter by 30-feet tall reservoir will be the highest
5 structure within this residential neighborhood and will likely result in extreme pushback
6 from adjacent residents. Please refer to the attached photo simulation, **Attachment 11**
7 (Clearview Photos and Photo Simulation and Photo Points of Views).³²⁸
8

9 **Attachment 11** (Clearview Photos and Photo Simulations and Photo Points of Views])
10 includes photos of the existing plant site from four perspectives and includes
11 simulated tanks to provide a visualization of how two 20-foot tall tanks will appear and
12 how a single 30-foot tall tank will appear. In order not to alienate our customers and
13 trigger what might become a battle before the OCPC, GSWC recommends that the
14 Commission approve construction of two 20-foot tall tanks in lieu of a single 30-foot
15 tall tank.
16

17 In addition to public relations and the ease of constructability, a dual reservoir design
18 offers operational benefits to the Cowan Heights system. This plant site is a critical
19 facility in “floating” (pressure in the system is maintained by the rising and falling water
20 levels in the tank) the Clearview Reservoir zone and the five other subzones that rely
21 on this facility for reliable water supply. The dual reservoir design will offer operational
22 flexibility because we can continue to provide this “floating” benefit, when GSWC
23 needs to take one reservoir offline for ongoing and routine inspections or repairs. If
24

25
26 ³²⁸Clearview Photos and Photo Simulations and Photo Points of Views.pdf, attached hereto as **Attachment 11**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 we only had one tank, as Cal Advocates suggests, GSWC would have to bring in a
2 temporary storage tank to keep the Clearview Plant site operational, during
3 inspections or maintenance.

4
5 Further, the Cowan Heights system is in a Zone 4 seismic zone (i.e. the most extreme
6 seismic zone), which would make it more difficult and expensive to construct a “tall”
7 reservoir. Constructing a “tall” tank with a “small” diameter is not advised in a Zone 4
8 seismic zone. Additionally, constructing a single taller reservoir will be costlier to
9 design and construct due to the additional seismic requirements needed when
10 constructing a “tall” tank with a “small” diameter. It should be noted that the physical
11 dimensions of the Clearview site (i.e. width of property) limit the diameter of a tank that
12 can be constructed. Thus, the best approach to mitigate the seismic impacts on a
13 smaller diameter tank is to limit the height of the tank. Therefore, constructing two
14 reservoirs at a lower height will result in more seismically stable storage tanks that will
15 be more aesthetically pleasing to the neighbors, and will provide more reliable
16 operational capabilities by allowing GSWC to remove a tank from service (to perform
17 maintenance) while keeping the other tank in service.

18
19 (Q) Did Cal Advocates express any other concerns with these projects?

20 (A) Yes. Cal Advocates states, “To calculate the cost of the single-tank alternative, Cal
21 Advocates replaced the construction cost for GSWC’s two planned tanks with an
22 estimate based on a unit cost of \$3.30 for a 0.20 MG tank.”³²⁹ Cal Advocates also
23 states, “This estimate is about \$200,000 less than the two-tank estimate with Cal
24

25 ³²⁹ *Id.* at 21:21-23.
26
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Advocates' recommended contingency and escalation. Therefore, a single-tank alternative would save about \$200,000 in upfront capital additions."³³⁰

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) No. Cal Advocates used a straight-line interpolation to estimate a unit cost of \$3.30 for a 0.20 MG reservoir. This method is incorrect, as estimating the unit cost of the reservoir as proposed by Cal Advocates fails to consider the reservoirs diameter to height ratio in their cost estimate. The cost to increase the diameter of a reservoir is relatively cheaper in cost then increasing the overall height this is due to the additional requirements needed to make the reservoir seismically stable in a Zone 4 seismic region.

Cal Advocates claims that a single reservoir design will save about \$200,000 in upfront capital cost, but Cal Advocates neglects the possible consequences of this option. Constructing a 30-foot tall reservoir adjacent to homes runs the risk of pending litigation because the visual disturbance could lower the value of the neighboring properties. If litigation was to occur, the cost that GSWC would have to spend could easily rise above \$200,000. In addition to the cost increase, litigation would prolong the construction time of the project, which is detrimental to the operations and supply reliability of the Cowan Height system.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) No.

³³⁰ *Id.* at 22:2-5.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Placentia CSA (Yorba Linda System)

Concerto, Booster Pump

(Q) Is there another project you would like to address?

(A) Yes. The Concerto, Booster Pump in the Yorba Linda System, Placentia CSA.³³¹

(Q) How much did GSWC request for this project?

(A) \$914,700 in 2022.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission deny a portion of this project.

(Q) What is Cal Advocates' reason for recommending a portion of that this project be denied?

(A) Cal Advocates states, "The Commission should adjust funding for the Concerto Booster Pump upgrade because a pump building is not needed."³³²

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) No. GSWC does not agree with Cal Advocates' recommendation to deny funding for the pump house. Locating a booster pump station in a pump building provides a climate-controlled environment that reduces environmental wear and tear, which

³³¹ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 204.

³³² Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 23:2-3.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 prolongs the useful life of all the booster pump station equipment and reduces the
2 frequency of maintenance. The Concerto plant is located in a residential area and is
3 immediately adjacent to neighboring residences. As proposed in this project, new
4 electrical components will be constructed adjacent to a residential home and will be
5 installed with a variable frequency drive ("VFD"). VFD's are inherently noisy and emit
6 an electrical whining noise that can be a nuisance to the adjacent homeowners.
7 GSWC seeks amicable relations with the community. Cal Advocates' suggestion that
8 GSWC should wait until the community is angry before acting to mitigate the
9 disturbance from its infrastructure is not reasonable. A pump house will provide noise
10 attenuation and improves security of the booster pump station and its contents.

11
12 (Q) Did Cal Advocates express any other concerns with this project?

13 (A) No.

14 15 Fairmont Oak Meadow PRV

16
17 (Q) Is there another project you would like to address?

18 (A) Yes. The Fairmont Oak Meadow, PRV in the Yorba Linda System, Placentia CSA.³³³

19
20 (Q) How much did GSWC request for this project?

21 (A) \$416,600 in 2021.

22
23 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

24
25 _____
26 ³³³ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 206.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Yes. Cal Advocates recommends that the Commission disallow this project.

2
3 (Q) What is Cal Advocates' reason for recommending that a portion of this project be
4 denied?

5 (A) Cal Advocates' concludes that there is not a safety concern with having the booster
6 pump station on one side of the road and the pressure regulating valve ("PRV") on the
7 other side of the road.³³⁴

8
9 (Q) Does GSWC agree with Cal Advocates' assessment?

10 (A) No. Although there have not been any accidents at this plant site, GSWC stands by
11 its position that this project will address our safety concerns at the Fairmont Oaks
12 plant site.

13
14 (Q) Are there other aspects of this project that was not addressed by Cal Advocates?

15 (A) Yes, a significant improvement for this project will be the installation of Supervisory
16 Control and Data Acquisition ("SCADA").

17
18 (Q) Did Cal Advocates address GSWC's request for SCADA improvements?

19 (A) No, Cal Advocates was silent on the SCADA.

20
21 (Q) Does GSWC support the need for SCADA even if the relocation of the PRV is not
22 authorized by the Commission?

23 (A) Yes, GSWC strongly supports the inclusion of funds to allow the installation of SCADA
24

25
26 ³³⁴ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 24-25.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 improvements at the Fairmont Plant. A robust SCADA system serves a critical role in
2 safeguarding and maximizing efficiency in GSWC's water production, treatment and
3 distribution systems. A SCADA system will also aid in reducing risk while improving
4 resiliency and reliability of an essential service. Furthermore, a robust SCADA system
5 will enhance GSWC's ability to mitigate the impacts of climate change – namely the
6 impending wildfires and the continuation of the drought by allowing real-time
7 monitoring of plant conditions during critical weather events.

8
9 As mentioned in the GSWC Hanford and Insko Capital Testimony, Fairmont Oak
10 Meadow PRV and Fairmont booster pump station ("BPS") work in tandem to manage
11 the distribution of water in this area.³³⁵ Cal Advocates has disregarded the importance
12 of the SCADA installation GSWC is proposing for the Fairmont Oak Meadow PRV
13 station. The addition of SCADA will allow GSWC to monitor flow rates, immediately
14 receive alarms when variations occur in system operations, manage pressure control
15 settings, and collect valuable system data from a remote location. This will ultimately
16 improve supply reliability and flexibility to the Yorba Linda system. When SCADA is
17 installed, GSWC can make changes in real time, so our response time will be
18 instantaneous, and GSWC does not have to wait for its operators to drive to the plant
19 site.

20
21 (Q) If GSWC does not relocate the Fairmont Oaks PRV does GSWC need additional
22 funding to install SCADA at the existing location?

23 (A) Yes. If GSWC does not reconstruct the Fairmont Oaks PRV station adjacent to the
24

25
26 ³³⁵ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 207:6-7.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 BPS, as Cal Advocates suggests, GSWC will need additional funds to install SCADA
2 at the existing PRV station. The change in scope will include funds for jack & bore
3 and electrical conduit. The overall project cost with overhead, contingency, and
4 escalation is estimated to be \$200,000.

5
6 (Q) Did Cal Advocates express any other concerns with this project?

7 (A) No.

8
9 **Claremont System**

10
11 **Del Monte, Replace Booster Station**

12
13 (Q) Is there another project you would like to address?

14 (A) Yes. The Del Monte, Replace Booster Station in the Claremont System, Claremont
15 CSA.³³⁶

16
17 (Q) How much did GSWC request for this project?

18 (A) \$2,463,200 in 2022.

19
20 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

21 (A) Yes. Cal Advocates recommends that the Commission deny a portion of this project.

22
23 (Q) What is Cal Advocates' reason for recommending that a portion of this project be
24

25 _____
26 ³³⁶ *Id.* at 221.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

denied?

(A) Cal Advocates states, that GSWC should repoint the mortar in the building rather than replacing the bricks. Cal Advocates also states: “To meet revised earthquake standards and protect its assets and operators, GSWC can also upgrade the pump building with seismic retrofits instead of replacing it.”³³⁷ Cal Advocates claims, “Removing the pump building would therefore save \$882,200 in upfront capital costs.”³³⁸

(Q) Does GSWC agree with Cal Advocates’ assessment?

(A) No. Cal Advocates claims that GSWC can retrofit the existing pump building, but Cal Advocates has neglected to consider the design limitations in doing so. The existing building contains the BPS and electrical components. To repoint the brick masonry, the contractor will need full access to the brick wall, the majority of which is currently blocked by electrical equipment as seen in the photo below.

³³⁷ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 28:24-25.

³³⁸ *Id.* at 29:13-14.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.



Del Monte BPS: Existing Electrical Equipment in Booster Building

Thus, in order for the contractor to access the brick wall, GSWC must remove the equipment from the building. However, removing this equipment could cause instabilities in the walls and could lead to the possible failure of GSWC's equipment.

GSWC does not agree with Cal Advocates' claim that removing the pump building from the project would save \$882,200 in upfront costs. Cal Advocates does not consider the necessary budget and design plans for such seismic upgrades. As mentioned in Attachment 4-2, Brick Brief: Repointing (Tuck-pointing) Brick Masonry, the report recommends that "[t]he application of these recommendations should be

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

done with skill and engineering judgment”.³³⁹ Due to the complexity of this project, multiple contractors will need to be hired to make this seismic retrofit project successful. Even after performing seismic upgrades, constructing a new booster station within the confines of an existing building will be much more difficult because of the limited and narrow access points that the contractors will have to work around to install the new booster station, electrical equipment, and necessary distribution pipelines. Constructing a booster station within an existing building with a permanent roof over the structure, will preclude a contractor from using heavy equipment (i.e. backhoes and excavators) to dig trenches, backfill trenches, and compact the backfill material. The roof will also preclude contractors from using cranes to move out old equipment and install new equipment. Without being able to utilize heavy equipment to construct the booster station with an existing building, all work will have to be performed by manual labor and will be labor burdensome. These additional factors that will impact the construction of a booster station in an existing structure will result in construction costs that will likely be double the costs for constructing these facilities within a new building.

The Del Monte plant site, which includes three booster pumps, a 1.5 MG reservoir, and three wells (one of which is active), is a critical infrastructure to the reliable supply of potable water and fire protection to the Claremont customers. GSWC cannot take this plant site completely offline to perform seismic retrofit and booster station upgrades. GSWC would need to install a temporary booster station and electrical

³³⁹ *Id.* Attachment 4-2, The Brick Industry Association, “Brick Brief: Repointing (Tuckpointing) Brick Masonry” (July 2005) at 141.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 service to keep the plant online.

2
3 In conclusion, GSWC does not agree with Cal Advocates' claim that removing the
4 pump building from the project would save \$882,200 in upfront costs. Cal Advocates
5 does not consider the necessary budget and steps to perform the seismic retrofit.
6 Based on items listed above, the seismic retrofit is a more intensive and time-
7 consuming option that could possibly be more expensive than the new building
8 budgeted in the original project.
9

10 (Q) Did Cal Advocates express any other concerns with these projects?

11 (A) No.
12

13 Indian Hill North, Replace Booster Station 14

15 (Q) Is there another project you would like to address?

16 (A) Yes. The Indian Hill North, Replace Booster Station in the Claremont System,
17 Claremont CSA.³⁴⁰
18

19 (Q) How much did GSWC request for this project?

20 (A) \$2,252,300 in 2022.
21

22 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

23 (A) Yes. Cal Advocates recommends that the Commission deny a portion of this project.
24

25
26 ³⁴⁰ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 223.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) What is Cal Advocates' reason for recommending that a portion of this project be denied?

(A) Cal Advocates states, "GSWC does not need to replace the existing chemical building and well house to improve accessibility."³⁴¹

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) No. GSWC does not agree with Cal Advocates' recommendation to deny funding for the chemical building and well building. Even though GSWC is constructing the new booster station away from Indian Hill North Well No. 3, the chemical building is still obstructing direct access and vision of the wellhead. To have direct access to the Indian Hill North Well No. 3 from the north side, GSWC will need to move the existing BPS, electrical equipment, and chemical building (for an existing site layout please see **Attachment 12** "Existing Indian Hill North Site Plan.pdf"³⁴²). For example, when pulling the pump from the well, GSWC will need to bring in a truck crane that will be positioned adjacent to the wellhead, which is currently occupied by the chemical building. In addition to the truck crane, GSWC will need a location to place the line shaft, which is comprised of sections of 20 feet-long pipe. Currently the Indian Hill North Well No. 3 pump is 440 feet deep, so there are 22 pipe sections. GSWC has safety concerns about placing the pipe sections on the east side of the Indian Hill North Well No. 3 well building due to the existing high voltage power lines near the right of way. Furthermore, GSWC would like to work on the well within the confines of

³⁴¹ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 30:7-8.

³⁴² Existing Indian Hill North Site Plan.pdf, attached hereto as **Attachment 12**.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 the plant site. The existing Indian Hill North Well No. 3 building was constructed on
2 rollers and is capable of rolling to the west exposing the wellhead. The only location
3 that GSWC can place the pipe sections is to the west side of the well building, but due
4 to the existing well building rolling to the west this will obstruct the view of the crane
5 operator so that it will be difficult to lay down the line shaft pipes. With an obstructed
6 view of the west side, there is a higher chance that the crane operator could damage
7 the reservoir or the line shaft, or potentially injure someone. Moving the chemical
8 building and constructing a new well building with a removable roof is the most
9 feasible design for full access to Indian Hill North Well No. 3 (for a proposed plant site
10 layout please see **Attachment 13** "Proposed Indian Hill North Site Plan.pdf"³⁴³).

11
12 (Q) Did Cal Advocates express any other concerns with these projects?

13 (A) Yes. Cal Advocates states, "The Commission should not presume that a noise
14 problem exists at the Indian Hill North BPS especially since neighbors have not made
15 noise complaints."³⁴⁴

16
17 (Q) Does GSWC agree with Cal Advocates' assessment?

18 (A) No. GSWC does not agree with Cal Advocates' statement. The existing BPS is
19 surrounded by equipment that help absorb and block the noise generated from the
20 existing BPS. To the west of the existing BPS, there is the 1.0 MG reservoir, and to
21 the south, there is the chemical and well building. In contrast, the new BPS will be
22 constructed in the center of the plant site, which is more exposed than the existing
23

24
25 ³⁴³ Proposed Indian Hill North Site Plan.pdf, attached hereto as **Attachment 13**.

26 ³⁴⁴ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 30:14-16.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 BPS location. The houses to the north and west will be able to hear the BPS station
2 since there will be nothing obstructing the noise. In addition to offering noise
3 attenuation, locating a BPS in a pump building provides a climate-controlled
4 environment that reduces environmental wear and tear, which prolongs the useful life
5 of all the booster station's equipment and reduces the frequency of maintenance.

6
7 (Q) Did Cal Advocates express any other concerns with these projects?

8 (A) No.
9

10 **San Gabriel Valley CSA (South San Gabriel & South Arcadia System)**

11
12 **Saxon Plant, Install Booster Station and Construct 0.75 MG Reservoir;**
13 **Encinita Plant, New Field Office**
14

15 (Q) Is there another project you would like to address?

16 (A) Yes. The Saxon, Install Booster Station and Saxon, Construct 0.75 MG Reservoir in
17 the South San Gabriel System, San Gabriel Valley CSA,³⁴⁵ and the Encinita, New Field
18 Office in the South Arcadia System, San Gabriel Valley CSA.³⁴⁶
19

20 (Q) How much did GSWC request for these projects?

21 (A) For the Saxon, Install Booster Station: \$2,328,700 in 2023 and Saxon, Construct 0.75
22 MG Reservoir: \$2,182,200 in 2022 and Encinita, New Field Office: \$1,510,100 in
23

24
25 ³⁴⁵ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 245-248

26 ³⁴⁶ *Id.* at 251.
27
28

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

2022.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow all projects.

(Q) What is Cal Advocates' reason for recommending that these projects be denied?

(A) Cal Advocates states, "South San Gabriel system has enough water supply to meet its demands without a new reservoir."³⁴⁷ Cal Advocates claims, "The demands of GSWC's planning scenarios are stricter than the Waterworks Standards and local fire flow requirements."³⁴⁸

(Q) Does GSWC address emergency storage in a different project?

(A) Yes. Please see the Region 2 rebuttal testimony for the Elaine Plant – New Tank and Booster Station³⁴⁹ above for an in-depth analysis of emergency storage.

(Q) Does the American Water Works Association discuss emergency storage requirements?

(A) Yes, AWWA Manual M31 – "Distribution System Requirements for Fire Protection" – notes the following: "A water supply system is considered to be fully adequate if it can deliver the required fire flows to all points in the distribution system with the consumption at the maximum daily rate (average rate on maximum day of a normal

³⁴⁷ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 38:7-8.

³⁴⁸ *Id.* at 38:16-17.

³⁴⁹ Refer to the Elaine Plant – New Tank and Booster Station, portion of this testimony.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 year). When delivery is also possible with the most critical limiting component out of
2 service for a specified length of time, depending on the type of component, the system
3 is considered to be reliable (i.e., MDD + FF with the largest supply source out of
4 service).³⁵⁰

5
6 GSWC does not agree with Cal Advocates' statement that GSWC's planning
7 scenarios are stricter than Waterworks Standards and local fire flow requirements. In
8 fact, GSWC is conservative in its analysis of what is needed to meet reliability
9 standards as mentioned in the AWWA Manual M31. As seen in GSWC's South San
10 Gabriel 2019 Master Plan, Table 5-1, the planning scenario for MDD+FF requires total
11 capacity and fire storage under the assumption that no facility is out of service.
12 GSWC's planning scenario is not stricter than Waterworks Standards and local fire
13 flow requirements as Cal Advocates maintains.

14
15 The South San Gabriel system is currently operated with a single reservoir.
16 Constructing a second reservoir in the South San Gabriel system will improve system
17 reliability and operational flexibility.

18
19 (Q) Is GSWC's criteria for the volume of emergency storage in line with the volume of
20 emergency storage within the ALDA Inc. Technical Memorandum for the Claremont
21 System?

22 (A) Yes, and it should be noted that GSWC's criteria is at the lower end of the range
23

24 ³⁵⁰ AWWA Manual M31, Water Supply Practices, Fourth Addition, "Distribution System Requirements for Fire
25 Protection" (2008) at 31, attached hereto as **Attachment 14**.
26

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

provided in the ALDA Inc. Technical Memorandum which states, "From all the WMP review, emergency storage ranged from 25 percent to 150 percent of MDD."³⁵¹ For the South San Gabriel System, GSWC utilizes 12-hours of ADD (12-hours x 1,615 gpm = 1.16 MG) as the criteria for emergency storage. This volume is equivalent to 31 percent of MDD, which is at the low end of the emergency storage range noted in the ALDA Inc. Technical Memorandum (12-hours of ADD ÷ 24-hours of MDD = 31%; ∴ 12-hours of ADD = 31% of MDD).

(Q) Did Cal Advocates express any other concerns with these projects?

(A) Yes. Cal Advocates' states, "As an alternative to operational storage, GSWC can install variable frequency drives ("VFDs") to its well pumps. VFDs control a pump's rate of supply to the desired output. Since VFDs regulate the difference between supply and usage, operational storage can be reduced."³⁵²

(Q) Do you agree with Cal Advocates claim that VFDs on our groundwater well pumps will preclude the need for Operational Storage?

(A) No. The total available groundwater supply available to the South San Gabriel system is 2,300 gpm³⁵³ and the MDD demand is 2,622 gpm³⁵⁴. Operational storage is calculated as four hours of PHD. PHD is the quantity of water in excess of MDD

³⁵¹ ALDA Inc., "Technical Memorandum Claremont Water System" (April 23, 2014) at 22.

³⁵² Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 41:14-17.

³⁵³ South San Gabriel Master Plan, Table 5-5

³⁵⁴ South San Gabriel Master Plan, Table 5-7

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 during the single greatest demand hour of MDD.³⁵⁵ Mathematically, Cal Advocates
2 recommendation does not add up. If the total groundwater supply available is 2,300
3 gpm and the MDD is 2,622 gpm, it is evident that MDD is greater available
4 groundwater supply, therefore, MDD cannot be met by groundwater. Variable
5 Frequency Drives (VFDs) are electronic devices that vary the speed of a pump by
6 decreasing the frequency of the power to the pump motor. VFDs can only slow
7 pumps down, resulting in a lesser flow. Based on the previous discussion, GSWC
8 contends if the available groundwater supply is not sufficient to meet MDD and PHD is
9 the quantity of water greater than MDD, Cal Advocates' recommendation is without
10 merit and wrong, and should be rejected by the Commission.

11
12 (Q) Did Cal Advocates express any other concerns with these projects?

13 (A) Yes. Cal Advocates' states, "GSWC also does not need reservoirs to provide
14 emergency supply. In case of a source interruption, a system can provide backup
15 supply from an independent source, a reservoir, or a combination of both."³⁵⁶

16
17 (Q) Does GSWC agree with Cal Advocates' assessment?

18 (A) No. During an emergency (i.e., power outage, earthquake, fire, etc.), Cal Advocates
19 claims that the "system can provide backup supply from an independent source . . ."³⁵⁷
20 Cal Advocates fails to identify the independent source GSWC will have access to
21 during an emergency. The South San Gabriel is fortunate enough to have a purchase
22

23
24 ³⁵⁵ South San Gabriel Master Plan, Section 3.1

25 ³⁵⁶ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 42:3-5.

26 ³⁵⁷ *Id.* at 42:3-5.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 water connection, but fails to recognize that if GSWC experiencing an emergency the
2 likelihood that other agencies are affected too are high. As such, GSWC proposes to
3 construct additional storage and booster station to become self-sufficient in providing
4 water to our customers in the event that GSWC experiences a major source
5 interruption.

6
7 (Q) Did Cal Advocates express any other concerns with these projects?

8 (A) Yes. Cal Advocates' analysis concludes that the reservoir and booster pump station is
9 not needed, and as a result, the existing Saxon Field Office does not need to be
10 demolished.

11
12 (Q) Does GSWC agree with Cal Advocates' assessment?

13 (A) No. Constructing the new field office on a parcel that GSWC currently owns is the
14 most cost-effective solution. To build this reservoir in the South San Gabriel system,
15 GSWC had two options:

16 1) Purchase land; or

17 2) Use the GSWC-owned parcel (i.e., Saxon Plant Site).

18
19 GSWC determined that purchasing land would be rather difficult and costly due to
20 rising property costs in Los Angeles County. Rather than purchasing additional land,
21 GSWC wishes to utilize the Saxon plant site to construct a reservoir and BPS. This
22 solution will save millions of dollars of up-front costs associated with purchasing land.

23
24 (Q) Does Cal Advocates recommend that the Commission deny the Saxon Booster
25 Station and ancillary equipment?

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) Yes, Cal Advocates states, “GSWC should not spend \$6,021,000 to accommodate and build a reservoir, BPS, and field office replacement to meet self-imposed storage criteria.”³⁵⁸

(Q) Does GSWC agree with Cal Advocates’ recommendation for the Commission to deny the Saxon Booster Station and ancillary equipment?

(A) No, GSWC provided overwhelming evidence and support for the Commission to approve the Saxon 0.75 MG Reservoir and Encinita Field Office; if the Commission agrees with GSWC on the need for the Saxon 0.75 MG Reservoir, the Commission should also find in favor of GSWC’s need for the booster station and ancillary equipment.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) No.

Jeffries Plant, Construct Booster Station, Construct 1.25 MG Reservoir, and Fencing Improvements

(Q) Is there another project you would like to address?

(A) Yes. The Jeffries, Construct Booster Station and the Jeffries, Construct 1.25 MG Reservoir and the Jeffries, Fencing Improvements in the South Arcadia System, San Gabriel Valley CSA.³⁵⁹

³⁵⁸ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 40:19-20.

³⁵⁹ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 248-250.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(Q) How much did GSWC request for this project?

(A) For the Jeffries, Construct Booster Station: \$2,484,300 in 2023; and Jeffries, Construct 1.25 MG Reservoir: \$2,843,300 in 2023; and Jeffries, Fencing Improvements: \$537,300 in 2022.

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow all projects.

(Q) What is Cal Advocates' reason for recommending that these projects be denied?

(A) Cal Advocates states, "the South Arcadia system has enough water supply to meet its demands without a new reservoir."³⁶⁰ Cal Advocates claims, "The demands of GSWC's planning scenarios are stricter than the Waterworks Standards and local fire flow requirements."³⁶¹

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) GSWC does not agree with Cal Advocates' reasons for denying these projects. Cal Advocates makes the same claims here as those made regarding the Saxon 0.75 MG Reservoir and Booster Station projects. Cal Advocates' reasons are as listed below:

- 1) "[T]he South Arcadia system has enough water supply to meet its demands without a new reservoir."³⁶²
- 2) "The local fire flow requirements do not require that a system supply fire flow from

³⁶⁰ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 44:3-4.

³⁶¹ *Id.* at 45:9-10.

³⁶² *Id.* at 44:3-4.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

a reservoir.”³⁶³

3) “The demands of GSWC’s planning scenarios are stricter than the Waterworks Standards and local fire flow requirements.”³⁶⁴

4) “As shown by Cal Advocates’ Table 6-5 above, the system has enough well firm capacity and purchased water capacity to meet interruptions such as the largest well going offline.”³⁶⁵

Please refer to GSWC’s rebuttal testimony for Saxon, Install Booster Station and Saxon, Construct 0.75 MG Reservoir above wherein GSWC refutes Cal Advocates’ gross misinterpretation of water supply requirements. As supported in the aforementioned testimony, multiple agencies (i.e., ALDA Inc., AWWA, and California Waterworks Standards) recommend that water agencies should provide emergency storage for adequate water supply.

(Q) Does GSWC address emergency storage in a different project?

(A) Yes. Please see the Region 2 rebuttal testimony above for the Elaine Plant – New Tank and Booster Station³⁶⁶ for an in-depth analysis of emergency storage.

(Q) Is GSWC’s criteria for the volume of emergency storage in line with the volume of emergency storage within the ALDA Inc. Technical Memorandum for the Claremont

³⁶³ *Id.* at 45:7-8.

³⁶⁴ *Id.* at 45:9-10.

³⁶⁵ *Id.* at 48:10-13.

³⁶⁶ Refer to the Elaine Plant – New Tank and Booster Station, portion of this testimony.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

System?

(A) Yes, and it should be noted that GSWC's criteria is at the lower end of the range provided in the ALDA Inc. Technical Memorandum which states, "From all the WMP reviewed , emergency storage ranged from 25 percent to 150 percent of MDD."³⁶⁷ For the South Arcadia System, GSWC utilizes 12-hours of ADD (12-hours x 2,046 gpm = 1.47 MG) as the criteria for emergency storage. This volume is equivalent to 26 percent of MDD, which is at the low end of the emergency storage range noted in the ALDA Inc. Technical Memorandum (12-hours of ADD ÷ 24-hours of MDD = 26%; ∴ 12-hours of ADD = 26% of MDD).

(Q) What are the benefits of additional storage in the South Arcadia system?

(A) The South Arcadia system does not have any purchased water connections and is totally reliant on groundwater and water stored in reservoirs. In Cal Advocates' analysis, Table 6-5³⁶⁸ shows that in scenarios D and E, storage water will need to be utilized to meet the demand scenarios. Cal Advocates mentions that although there is storage usage in these scenarios, the reservoir can be filled by our Farna Well No. 2 (1,000 gpm). This is indeed how GSWC normally operates the Farna Plant site, but this assumes that the Farna reservoir and booster pump station will be operational 100% of the time. This assumption is incorrect because repairs and inspections need to be performed on either the reservoir or booster pump station, thus requiring the plant to be out of service. In the event that the reservoir or booster pump station is out of service, the new Jeffries reservoir and booster pump station will offer GSWC

³⁶⁷ ALDA Inc., "Technical Memorandum Claremont Water System" (April 23, 2014) at 22.

³⁶⁸ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 46.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

storage redundancy and operational flexibility.

(Q) Does Cal Advocates recommend the Commission deny the Jeffries Booster Station and ancillary equipment?

(A) Yes, Cal Advocates states, “GSWC should not spend \$5,864,900 to accommodate and build a reservoir, BPS, and fencing to meet self-imposed storage criteria.”³⁶⁹

(Q) Does GSWC agree with Cal Advocates’ recommendation for the Commission to deny the Jeffries Booster Station and ancillary equipment?

(A) No, GSWC provided overwhelming evidence and support for the Commission to approve the Jeffries 1.25 MG Reservoir in the Commission’s decision, and if the Commission agrees with GSWC on the need for the Jeffries 1.25 MG Reservoir, the Commission should also find in favor of GSWC’s need for the booster station and ancillary equipment.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) No.

Barstow CSA (Barstow System)

Bear Valley Plant – Phase 3

(Q) Is there another project you would like to address?

³⁶⁹ *Id.* at 48:14-15.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) Yes. The Bear Valley Phase 3 in the Barstow System, Barstow CSA.³⁷⁰

2
3 (Q) How much did GSWC request for this project?

4 (A) \$3,896,500 in 2023.

5
6 (Q) Does Cal Advocates recommend that all or a portion of this project be denied?

7 (A) Yes. Cal Advocates recommends that the Commission deny a portion of this project.

8
9 (Q) What is Cal Advocates' reason for recommending that a portion of this project be
10 denied?

11 (A) Cal Advocates states, "a new pump building is not needed"³⁷¹ due to "no recorded
12 noise complaints that can substantiate a noise problem at the Bear Valley BPS."³⁷²

13
14 (Q) Does GSWC agree with Cal Advocates' assessment?

15 (A) No. GSWC does not agree with Cal Advocates' recommendation to deny funding for
16 the Bear Valley pump building. GSWC is not proposing that the new pump building be
17 constructed to mitigate noise problems. The Barstow system is located in the Mojave
18 Desert region, so equipment that is constructed out in the open is subjected to harsh
19 weather and environmental conditions. Average daytime temperature statistics for
20 Barstow indicate a low temperature of 25 °F and a high temperature of 115 °F in 2007,
21

22
23
24 ³⁷⁰ Prepared Testimony of Robert Hanford and Mark Insko Operating District Capital Testimony at 264.

25 ³⁷¹ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 53:4.

26 ³⁷² *Id.* at 54:1-2.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 with a typical high temperature of 105 °F.³⁷³ During the months of April, May, and
2 June, Barstow is commonly exposed to sustained winds of up to 25 mph.³⁷⁴ The
3 excessive high summer temperatures cause failures in sensitive electronic equipment.
4 Electronic equipment failures may lead to the failure of the motor control center and
5 cause pumps and water production equipment to fail. The failure of water production
6 equipment due to high temperatures typically coincides with maximum day water
7 demands. To guard against heat induced equipment failure, GSWC locates water
8 production equipment and controls within environmentally controlled structures.
9 Housing the equipment within a structure not only protects against extreme heat but
10 also protects above ground water lines and solenoids (i.e., operational controls and
11 sensors) against failure due to freezing. In addition to plant production failures from
12 the extreme weather common in Barstow, plant failure may also result from wind.
13 Barstow is a high desert town with little vegetation. When the winds blow, which is
14 common in the months of April through June, the wind picks up dirt, dust, and debris
15 and carries it into the windings of electric motors, contacts starters, microcomputers,
16 and heat sinks used to cool electronic equipment. This accumulation of dust leads to
17 equipment failure. As discussed, the extreme temperatures and wind in the Barstow
18 area reduce the reliability of water production equipment. In order to mitigate this
19 known vulnerability, the best solution is to locate booster stations and electrical
20 components in climate-controlled environments. In addition, housing the new booster
21 station and electrical components will prolong the useful life of the equipment by
22 protecting the equipment from environmental wear and tear and thereby reducing the
23

24
25 ³⁷³ See <https://www.windfinder.com/windstatistics/barstow> (captured April 5, 2021).

26 ³⁷⁴ *Id.*

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

frequency of maintenance.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) Yes. Cal Advocates' states, "GSWC can, however, alternatively operate the four proposed booster pumps in the open. Two of the existing pumps currently operate in the open."³⁷⁵

(Q) Does GSWC agree with Cal Advocates' assessment?

(A) No. As noted above, the temperatures in the Barstow area can get below freezing and any above ground piping can experience freezing. Many of the GSWC plant sites are installed with pressure regulating, pressure relief, pressure sustaining, and altitude valves that use "pilot" or control tubing which consist of 1/4-inch stainless steel piping. These types of pipes are very susceptible to freezing if installed in the open. These valves are critical to the operations of our equipment and if any of these components were to fail, it could cause the loss of supply in the Barstow system. As we have recently witnessed in Texas, freezing temperatures will freeze pipes and can cause them to burst due to the expansion of freezing water. To mitigate this problem GSWC proposes the new BPS and all above piping be constructed in a building.

(Q) Did Cal Advocates express any other concerns with these projects?

(A) No.

³⁷⁵ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 53:18-20.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

Morongo Valley CSA (Morongo Del Norte System)

Highway Well, Uranium Treatment

(Q) Is there another project you would like to address?

(A) Yes. The Highway Well, Uranium Treatment in the Morongo Del Norte System, Morongo Valley CSA.³⁷⁶

(Q) How much did GSWC request for this project?

(A) \$754,300 in 2022

(Q) Does Cal Advocates recommend that all or a portion of this project be denied?

(A) Yes. Cal Advocates recommends that the Commission disallow this project.

(Q) What is Cal Advocates' reason for recommending this project be denied?

(A) Cal Advocates states, "The Commission should deny funding in rates for the Highway Uranium Treatment Plant because the Morongo Del Norte system already has reliable water supply."³⁷⁷ Furthermore, Cal Advocates' claim, "The most recent years, 2017-2019, in the Highway Well's sample results show a downward trend."³⁷⁸

(Q) Does GSWC agree with Cal Advocates' assessment?

³⁷⁶ Prepared Testimony of Robert Hanford and Mark Insco Operating District Capital Testimony at 285.

³⁷⁷ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 59:13-15.

³⁷⁸ *Id.* at 59:10-11.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

(A) No. Cal Advocates states that when the Elm Well is active, "...the Morongo Del Norte system will have three active wells. The Elm, Bella Vista, and Highway wells have capacities of 90, 100, and 100 gpm, respectively. Each well has the capacity to individually meet the system's MDD of 87 gpm. According to GSWC's supply and capacity analysis, the system can meet the PHD and the largest fire flow during MDD planning scenarios with a combination of water from wells and the Navajo Reservoir. The Morongo Del Norte system therefore has reliable supply should GSWC take the Highway Well offline".³⁷⁹ This does not take into consideration an event where the Elm Well is offline in the future.

Due to the varied, sometimes significant, fluctuations in uranium levels in the Highway Well over short periods of time, forecasting by using short term trend lines can be misleading, as the trend line will be upward, downward or flat, depending on the time period used for calculating the trend. While looking at just the three most recent year's samples indicates a down ward trend line, as shown on Figure 9-2: Highway Well Uranium Sample Concentration 2017-2019.³⁸⁰ The long-term trend line as shown on Figure 9-1: Highway Well Uranium Sample Concentration 2004-2019³⁸¹, shows a slight upward trend. The samples for the Highway Well from 2004 thru 2019, indicate that the overall average uranium level is 15.36 picocuries per Liter ("pCi/L"). In the most recent three years (2017-2019), the average sample concentration was overserved to be 16.51 pCi/L, which is higher than the overall average uranium level

³⁷⁹ Report and Recommendations on Region 3 Plant, Contingency, and Plant Escalation at 60:16-23.

³⁸⁰ *Id.* at 62.

³⁸¹ *Id.* at 61.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 of the well. It is difficult to predict when the uranium levels will increase or decrease
2 and by how much. Over the period from 2017 thru 2019 there were two samples that
3 approached the maximum contaminant levels ("MCL") of 20 pCi/L. Both samples
4 were at 18.02 pCi/L, which is over 90% of the MCL. The average uranium level for the
5 period from 2017 thru 2019 is 16.51 pCi/L, which is over 82% of the MCL.

6
7 Uranium is a naturally occurring mineral in the groundwater formation in Morongo
8 Valley and every well in the Morongo Valley Customer Service Area has some level of
9 Uranium concentration in water. The levels fluctuate through the seasons and over
10 the years. With both the Highway and Bella Vista wells having an average uranium
11 level which exceeded 80% of the MCL for the period of 2017 thru 2019, and with the
12 varied fluctuations in uranium levels in these wells, sometimes significantly increasing
13 in a relatively short period of time, each of these wells could easily see uranium levels
14 increase to or above the MCL with little or no warning, requiring the well to be taken
15 offline. If both of these wells were to see increases in the uranium levels that required
16 them to be offline at the same time, this would leave only Elm Well available as a
17 source of water for the Morongo Del Norte system. With no redundancy for treating
18 uranium at the Highway and Bella Vista wells, should the Elm well or the Elm Well
19 uranium removal system be offline for maintenance, or need to be taken offline for
20 emergency repairs, during this time, there would be no available source of water in the
21 Morongo Del Norte system, as there are no purchased water connections or
22 emergency connections in the Morongo Del Norte system. Therefore, it is prudent
23 and reasonable to install a uranium treatment system at the Highway Well before the
24 uranium levels actually exceed the MCL.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 It is prudent and reasonable to install a uranium treatment system at the Highway Well
2 before the uranium levels actually exceed the MCL, to preempt the well from having to
3 be taken offline and to provide redundancy for treating uranium in the Morongo Del
4 Norte system. The installation of a uranium treatment system at the Highway Well will
5 help ensure the reliability and operational flexibility of the Morongo Del Norte System
6 to provide safe potable water to GSWC customers. GSWC recommends that the
7 Commission approve the funding in rates for Highway Uranium Treatment Plant as
8 requested in GSWC's 2020 GRC Testimony.

SCADA

11
12 (Q) What would you like to discuss next?

13 (A) I would like to discuss GSWC's proposed budgets for SCADA in the Arden Cordova,
14 Bay Point, Clearlake, Los Osos, Santa Maria, Simi Valley and Region 3 ratemaking
15 areas.

16
17 (Q) Does Cal Advocates oppose these SCADA projects?

18 (A) No. Cal Advocates agrees with the proposed SCADA projects but recommends that
19 the project cost estimates be updated to GSWC's revised project cost estimates
20 provided during discovery.³⁸²

21
22 (Q) Does GSWC agree with Cal Advocates?

23
24
25 ³⁸² Report and Recommendations on Region 1: (Arden-Cordova, Bay Point, Clearlake & Simi Valley), Attachment
26 1-5, GSWC's Response to Public Advocates Data Request JMI-009, Q.1.

ROBERT HANFORD AND MARK INSCO REBUTTAL TESTIMONY Cont.

1 (A) GSWC agrees that the project cost estimates for the SCADA projects should be
2 updated to GSWC's revised project cost estimates provided during discovery.
3 However, as stated in the Contingency and Escalation Section beginning on page 2
4 above, GSWC does not agree with Cal Advocates' recommendation to reduce the
5 contingency on the SCADA projects to 5% and to remove the escalation factors.
6

7 (Q) Does that conclude your rebuttal testimony?

8 (A) Yes.
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